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THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—14TH YEAR. SYDNEY: SATURDAY, MARCH 5, 1927. No. 10.

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GILBERT & LIPPMANN, La Presse Médicale, No. 73, 1904.

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SIMPLIFICATION OF THE DIETETIC TREATMENT OF DIABETES MELLITUS.

By R. COUPLAND WINN, M.B., Ch.M. (Sydney),
Honorary Assistant Physician, Sydney Hospital.

THE following is an attempt to simplify the details of the dietetic treatment of *diabetes mellitus* without sacrificing any of its principles. Just as in infant feeding calories may receive more attention than the child, so it is with diabetes.

Rest to the islands of Langerhans continues to be the essential principle and this can best be secured by a moderate reduction in the diet without rest in bed and without "Insulin" in the majority of cases. "Insulin" is necessary if sufficient food to do light work cannot be supplied otherwise. Should "Insulin" be used, a quantitative control of the diet is more important than when it is not used, for there is the added danger from too little food as well as too much.

The Allen method is ineffective in emaciated patients, unnecessary in others and because of starvation (and consequent lowered resistance to infection) obnoxious and harmful in all.

The first statement is borne out by the fact that it is sometimes impossible to render a patient "sugar-free" by starvation, whereas a moderately reduced diet suitably proportioned may be successful. The reason for this was demonstrated by Newburgh and Marsh[1], Wilder[2], Woodyatt[3], Shaffer[4] and others and fully described by Professor A. E. Mills in the THE MEDICAL JOURNAL OF AUSTRALIA, August 4, 1923. Briefly, starvation of a very thin person leads to the production of more sugar than would be derived from diets such as are described. This is because the patient has to burn up his tissue protein, of which 58% becomes glucose in the process. In practice it is found that the Allen method is unnecessary in other cases as well, probably because the individual burns the food rather than his tissues when the diet is properly adjusted. Before starvation was known to be unnecessary, it was a difficult procedure to persuade some patients that the cure was not worse than the disease. It also was known to be an unsatisfactory method when tuberculosis (or other serious infection) was present.

Though the Allen method has been superseded, unnecessary detail associated with the system has been retained by many.

Owing to the greater number of calories prescribed in modern diets, errors are likely to be of less consequence; consequently average figures for the analysis of foods have been used to a greater extent than formerly in the method here described.

Just as it is the custom in lists of vegetables and fruits to strike averages for the carbohydrate content, so "meat" and "bacon" are merely defined as moderately fat portions of the muscle and "fish" as non-fatty fish.

All viscera are excepted and only a short list of alternatives used. There obviously is less need for accuracy than in vegetables and fruits. Such a method succeeds in practice and at the same time avoids the long lists of alternatives, such as Lawrence uses (which incidentally are improperly adjusted in the writer's opinion, the protein and fat being both very much too high).

As a matter of fact the Allen method did not lead to strict accuracy, though this was then thought to be very important.

This is obvious if one observes the lack of unanimity regarding figures for the analysis of foods in the textbooks. This is probably so, because the figures vary according to the nutrition of the plant or animal from which the foods come.

For the same reason Australian figures are probably different to European or American. Patients rarely eat all that is weighed and the figures vary according to the amount and character of the parts discarded (gristle, rind and so forth). Again variation in the manner of cooking would lead to differences in the figures.

The method here described leads to a greater accuracy in practice than the Allen method: the patient is recommended to confine himself to the same variety of foods each day, to the same method of cooking them and to the same habits with regard to waste until he has reached calories equal to the number got by multiplying his weight in pounds by fifteen (thirty-two calories per kilogram). Attaining such a "standard diet" is more important in practice than knowing the exact number of calories supplied, for if the diet is higher than is suitable, a reduction may be made next visit.

The Method.

When a patient is proved to be suffering from *diabetes mellitus,* find out his weight. Multiplication of the weight in pounds by twelve (or weight in kilograms by twenty-six) will give the number of calories he should get in his diet. In practice it is found satisfactory to take the nearest hundred calories to this figure. By varying combinations of the three "diet groups" listed in Chart I. diets of any desired number of hundreds of calories may be computed ranging from 1,000 calories to 2,000; after 2,000 the rises will be of two hundred calories. Assuming that the patient's weight is 154 pounds, the calories required would therefore be 1,800 (154 × 12). This number of calories may be supplied by giving the patient double the quantity of foodstuffs found in "diet group 900."

It will be observed that in the diet of 1,800 calories as much as eighteen ounces of 5% vegetables are allowed. From the list of alternatives found in Chart II. below the table of vegetables and fruits equivalent quantities of higher percentage vegetables and fruits may be reckoned.

It will be noticed that the combination of the "diet groups" is in the easy form of multiplication or addition in almost every case and that the completed diet will never contain a smaller quantity of any foodstuff than half an ounce, a distinct advantage over the Lawrence line-ration scheme.

The diet prescribed will be taken for one week, the patient being allowed to do very light work. If sugar is still present in his urine when he returns, but reduced in quantity, the same diet is continued for another week. If the sugar is not reduced, a diet of two hundred calories less is prescribed. After the second week the patient is almost always "sugar-free" and may actually be so at the end of the first week. If so a diet two hundred calories higher is supplied him. If not, he should be given "Insulin," for he will probably not be able to do any useful work without it, even after his tolerance has increased. Next week another increase of two

CHART I.

CALORIES OF INITIAL DIET = Weight of patient in pounds multiplied by 12 (weight of patient in kilograms multiplied by 26).
CALORIES OF "INSULIN" DIET = Weight of patient in pounds multiplied by 18 (weight of patient in kilograms multiplied by 39).
CHILDREN = Weight in pounds multiplied by 25 without "Insulin" and by 28 with "Insulin."

1,000 Calories = "500" × 2	1,500 Calories = "900" + "600"	2,000 Calories = "500" × 4
1,100 Calories = "600" + "500"	1,600 Calories = ("500" × 2) + "600"	2,200 Calories = 1,100 × 2
1,200 Calories = "600" × 2	1,700 Calories = ("600" × 2) + "500"	2,400 Calories = "600" × 4
1,300 Calories = ("900" × 2) − "500"	1,800 Calories = "900" × 2	2,600 Calories = 1,300 × 2
1,400 Calories = "900" + "500"	1,900 Calories = "900" + ("500" × 2)	2,800 Calories = 1,400 × 2
"DIET GROUP 500."	"DIET GROUP 600."	"DIET GROUP 900."
Breakfast—	Breakfast—	Breakfast—
Milk 1 oz.	Milk 2 oz.	Milk 1 oz.
Bacon ½ oz.	Bacon ½ oz.	Bacon 1 oz.
5% Vegetables 4 oz.	5% Vegetables 4 oz.	5% Vegetables 8 oz.
Butter ¼ oz.	Butter ¼ oz.	Egg 1.
Lunch—	Lunch—	Lunch—
Milk 1 oz.	Milk 1 oz.	Milk 1 oz.
Fish 1 oz.	Fish 1 oz.	Fish 1½ oz.
5% Vegetables 4 oz.	5% Vegetables 5 oz.	5% Vegetables 9 oz.
Butter ½ oz.	Butter ½ oz.	Butter 1 oz.
Dinner—	Dinner—	Dinner—
Meat 1 oz.	Milk 1 oz.	Milk 1 oz.
5% Vegetables 5½ oz.	Meat 1 oz.	Meat 1½ oz.
Butter ¼ oz.	5% Vegetables 5 oz.	5% Vegetables 8 oz.
	Butter ½ oz.	Butter ½ oz.

CHART II.

6 oz. Milk = { 9 oz. 5% Vegetables. / 1 Egg.

Until the patient reaches a diet corresponding to 15 calories per pound of his weight he should keep to the Standard Diet, that is confine himself to the same variety of foods, to the same methods of cooking, to the same habits as to waste, and take only vegetables and fruits, "Cereal Foods" to be taken only after giving up the Standard Diet.

Non-Nutrients.	"Vegetables and Fruits" as in Joslin with the addition of				"Cereal Foods"	
	"5%" Vegetables.	"10%" Vegetables.	"15%" Vegetables.	"20%" Vegetables.	45% Carbohydrate.	65% Carbohydrate.
Tea Coffee Cracked Cocoa Broth Bouillon Salt Pepper Vinegar Mustard Sage Spice Mushroom Thrice boiled 5% Vegetables	(As in Joslin) Unsweetened pickled vegetables Twice boiled "10%" vegetables	(As in Joslin)	(As in Joslin)	(As in Joslin)	Wholemeal bread	Oatmeal
	"5%" Fruits.	"10%" Fruits.	"15%" Fruits.	"20%" Fruits.	50% Carbohydrate.	70% Carbohydrate.
	(As in Joslin)	(As in Joslin) Twice boiled "15%" fruits Quince Gooseberry Loganberry Watermelon Muskmelon Damson Nectarine Papaw	(As in Joslin) Grape Mango Mulberry Huckleberry Greengage	Fig (as in Joslin) Loquat Pomegranate	White bread	Whole meal flour Shredded wheat biscuit Barley (seeds)
Alcoholic Drinks (Better Avoided).				"30%" Fruits.		80% Carbohydrate
No Carbohydrate— (1) Distilled Liquors— { Whisky, Brandy, Gin, Rum } (2) Dry Wines 5% Carbohydrate— { Beer, Ale, Cider }				Persimmon		Rice (seeds) Macaroni (sticks)

ALTERNATIVES.

1 oz. "10%" Vegetables = 2 oz. "5%" Vegetables
1 oz. "10%" Fruits = 3 oz. "5%" Vegetables
1 oz. "15%" Vegetables and Fruits = 4 oz. "5%" Vegetables
1 oz. "20%" Vegetables and Fruits = 6 oz. "5%" Vegetables
1 oz. "30%" Fruit = 10 oz. "5%" Vegetables
} = 3%

1 oz. 45% Cereal Foods = 14 oz. "5%" Vegetables
1 oz. 50% Cereal Foods = 17 oz. "5%" Vegetables
1 oz. 65% Cereal Foods = 22 oz. "5%" Vegetables
1 oz. 70% Cereal Foods = 23 oz. "5%" Vegetables
1 oz. 80% Cereal Foods = 27 oz. "5%" Vegetables
} = 3%

MEAT AND FISH.

Definition.—Meat = moderately fat muscle. Fish = non-fatty fish.

MEAT.

Exceptions—Viscera or organs (as liver).
Alternatives—
1 oz. Veal = 1½ oz. Fish
1 oz. Rabbit = 1 oz. Fish
1 oz. Chicken = 1 oz. Fish
1 oz. Duck = 1 oz. Fish + ½ oz. Butter.
Fish 2 oz. + Butter ½ oz. = 2 oz. Meat
1 oz. Fat Poultry = 1 oz. Meat
Cheese 2 oz. + "5%" Vegetables 2 oz. = 3 oz. Meat

FISH.

Exceptions—
(1) Viscera or organs (as roe).
(2) Fatty Fish—
Salmon = Meat
Sardine = Meat
Herring = Meat
Alternatives—
6 Oysters (or other shell fish) = { 1 oz. Fish + 4 oz. "5%" Vegetables

BACON = moderately fat.

1 oz. Bacon = 1 oz. Ham and ¾ oz. Butter
1 oz. Bacon = 1 oz. Pork and ½ oz. Butter

FATTY FOODS.

Butter 1 oz. = { or Margarine 1 oz. / or Dripping 1 oz. / or Suet 1 oz. }
Butter ½ oz. = Cream 1 oz. or Olive Oil ⅓ oz.
Brazil Nuts 1 oz. = { Fish 1 oz. / "5%" Vegetables 2 oz. / Butter ¾ oz. }
Walnuts 1 oz. = { Fish 1 oz. / "5%" Vegetables 4 oz. / Butter ¾ oz. }
Almonds 1 oz. = { Fish 1 oz. / "5%" Vegetables 4 oz. / Butter ½ oz. }

SYNOPSIS OF CASE RECORDS.

A few have been inserted to indicate the practicability of the method.

Patient.	Age.	Weight per		Condition.	Calories.	Blood Sugar Before Treatment.	Days Before Aglycosuria Occurred.	Acidosis During Treatment.	Calories per		Carbo-hydrate.	Protein.	Fat.	Anti-Ketone Ketone Ratio.
		Kilo.	Pound.						Kilo.	Pound.				
Mr. D.S.P.	39	80	176	Up	2,600	..	13	–	32	15	57	50	240	1:2
Mr. D.E.	79	83	183	Up	1,900	..	6	–	24	11	63	54	162	1:1·5
Mrs. K.F.	60	65	143	Bed	1,300	0·3%	9	+	20	9	42	53	102	1:1·4
Mr. E.S.	39	100	220	Up	2,240	..	?	+	22	10	99	86	167	1:1
Mrs. E.	54	65	143	Up	1,700	..	?	++	25	11	25	32	161	1:2·7
Mr. W.A.	45	70	154	Up	1,400	0·4%	7	Out-patient	20	9	45	46	114	1:1·5

It will be noticed that acidosis occurred during treatment where the calories per pound were low, or ketones too high.

hundred calories is made, if the urine continues to be "free of sugar" and the increase repeated each week until the patient gets sufficient to be able to do light work. Should sugar return before this, it will be advisable to give him "Insulin."

Should "Insulin" not be desirable for any reason, tolerance might conceivably increase to the necessary level after several weeks of aglycosuria.

When "Insulin" is to be used, the number of calories required in the diet is got by multiplying the weight in pounds by eighteen (or the kilograms by thirty-nine). The "Insulin" dosage is gradually increased, but not beyond thirty units (unless under advice from a consultant) and the diet reduced by two hundred calories if glycosuria persists.

It is often advocated that the basal metabolism be estimated by using the Du Bois chart, so much *per centum* being added for activity. This is an unnecessary detail from the practical point of view and theoretically also, unless accurate measurements are likewise made of the activity.

Chart II. is an amplification of the scheme introduced by Joslin of dividing the vegetables and fruits into lists according to the carbohydrate content. I have added certain fruits found in Australia, cereal foods and a table of alternatives for use with them. Meat, fish, bacon and fatty foods are defined below the carbohydrates and a short list of alternatives and exceptions added.

The "standard diet" for use up to fifteen calories per pound of the patient's body weight is also defined; but it is not essential to keep to this. It is, however, important that the patient should not eat cereal foods until fifteen calories per pound has been reached, because there is thus less likelihood of exceeding the carbohydrate allowance. There is little chance of deficiency diseases developing when such a method is used. Deficiency of certain proteins or amino-acids is the most likely one in a diabetic dietary when there is a too restricted choice. Milk is often given in insufficient quantity to the diabetic. Chart II. is kept typed (with the additions from Joslin) and supplied to the patient. The medical practitioner may complete in his pocket book a more elaborate list than Chart I. by inserting the various weights at twelve calories per pound of body-weight corresponding to the different number of hundreds of calories; he will thus be able to see at a glance what number of calories the patient should get.

In order to save time when dealing with patients, the completed diets from 1,000 to 3,000 may be kept ready typed.

There would be no need to keep a note of the "diet groups" if the formula by which they were designed were noted, for a diet might be designed for each patient individually.

This formula is a modification of Campbell's:

$$C = \frac{M - 10P}{20} \qquad F = \frac{M}{10} - \frac{6P}{10}$$

where M signifies calories required and C, P, and F carbohydrate, protein and fat respectively.

The reason for this modification by the writer is that Campbell's own formula supplies too much fat.

It is a fact certainly that fat would be theoretically the ideal food for the diabetic as only 10% may be reckoned as glucose. However, "fats burn in the fire of the carbohydrates" and without sufficient carbohydrate incomplete combustion which we call acidosis (or ketosis) occurs.

The pendulum swung away from the fear of fat so emphatically taught by Joslin to an excessive use of it (as in Newburgh and Marsh's diets). Ketosis may be lethal, but glycosuria *per se* never is.

The consensus of opinion nowadays favours ketogenic substances ranging from 1·5 to 2·0, compared with antiketones considered as unity. In the diets described the lower figure of 1·5 has been adopted.

There is another consideration to be met when designing an ideal diet and that is the protein content; for unless sufficient is prescribed, there will result a negative nitrogen balance.

Newburgh and Marsh, following Hindehede, demonstrated that 0·66 gramme per kilogram of body weight was sufficient to prevent this.

As the specific dynamic action of protein is very high, it is important not to exceed this to a large extent. In these diets 0·8 gramme per kilogram is the rule, except in children for whom it is nearly two grammes per kilogram.

Campbell[5] in the book written in collaboration with Professor Macleod, of Toronto, advises giving patients the basal diet which is about twelve calories per pound, but he keeps his patients in bed. Wilder advises about the same amount.

Summary.

1. An attempt has been made to simplify the details of the dietetic treatment without sacrificing any of its principles.

2. Rest to the islands of Langerhans continues to be the essential principle and this can best be secured by a moderate reduction in the diet, without "Insulin" in the majority of cases and with "Insulin" if sufficient food to do light work cannot be supplied otherwise.

3. The Allen method is ineffective in emaciated patients, unnecessary in others and because of starvation (and consequent lowered resistance to infection) obnoxious and harmful in all.

4. Though the Allen method has been superseded, unnecessary detail associated with it has been retained by many.

5. In the method here described the patient is examined once a week and increases of 200 calories are made in the diet if the urine is "sugar-free."

6. By varying combinations of three "diet groups" (of 500, 600 and 900 calories), it is possible to supply completed diets ranging from 1,000 calories to any limit, with rises of one hundred up to 2,000.

7. Just as it is the custom in lists of vegetables and fruits to strike averages for the carbohydrate content (*confer* Joslin), so for meat and fish average figures have been used. Only a few exceptions and alternatives have been listed.

References.

(1) L. N. Newburgh and P. L. Marsh: "Further Observations on the Use of High Fat Diet in the Treatment of Diabetes Mellitus," *Archives of Internal Medicine*, April, 1923, Volume XXXI., page 455.

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(4) P. A. Shaffer: "The Ketogenic Anti-Ketogenic Balance in Man," *Journal of Biological Chemistry*, July, 1921, Volume XLVII., page 449.

(5) J. J. R. Macleod and W. R. Campbell: "Insulin," *Medical Monographs*, Volume VI., Chapter XIII., page 125, 1925.

MENTAL DEFICIENCY: CAUSES AND CHARACTERISTICS.

By JOHN BOSTOCK, M.B., B.S. (London), D.P.M.,
Medical Superintendent of the Mental Hospital, Newcastle; Honorary Physician in Charge of Neurological and Psychiatric Clinic, Newcastle General Hospital, New South Wales.

ALTHOUGH the physician is taught in his early studies to realize the intimate relationship between the animal and the vegetable world, he is apt later to regard it as of mere academic interest. I am, however, deliberately drawing attention to the topic because it helps so materially towards the understanding of what will follow.

It is known by every gardener that apparently identical seeds in apparently identical ground under apparently identical conditions will lead to different rates and kinds of growth. This is partly due to an inherent variability, but often the factors operative in any particular case can be ascribed to defective seed, uncongenial soil and temperature or the accidents of plant life, *aphides*, slugs and snails.

These obvious causes of failure to grow normally come under the very expressive designation—blight; the word which I will take to introduce the question of mental deficiency.

The reasons why any given human being should often fail to reach normal mental maturity are similar in that either it is the result of the still inexplicable normal variability or the conditions for growth, instead of being optimum, have been unfavourable—the neuronic growth has been blighted. It will be found that in the majority no single factor can be ascribed as causal.

It will be my purpose to give examples taken from the two hundred and fifty mental defectives of this Hospital; they will briefly illustrate firstly the deleterious influences at work, secondly the physical and mental peculiarities of mental deficiency.

GENERAL CAUSES OF MENTAL DEFICIENCY.

Many have been the arguments as to whether mental deficiency is atavistic, a throwback to some ancestral type or is a spontaneous variation, a throwout on the road to progress. Certain it is that in some cases there is no obvious reason in either ancestry or environment why the child should be defective.

CASE I.—J.A., a feeble-minded girl of fifteen years of age, is the fourth child and has eight healthy brothers and sisters. The family history is clear, she is merely the

runt; a spontaneous variation, unlucky to have less rather than more intellectual capacity.

Although of recent years the study of heredity has made great progress, there is still much controversy as to its mechanism and as to whether acquired characteristics can be transmitted.

Authorities differ in their estimate of the frequency of neuropathic inheritance, the estimates varying from 45% to over 80%. Many of our patients show it, though I have been unable to work out the percentage and the following is typical; incidentally it is said that the father is more often to blame than the mother.

CASE II.—R.A., *ætatis* eleven years, was admitted on September 26, 1924. His genealogical tree is shown in Figure I.

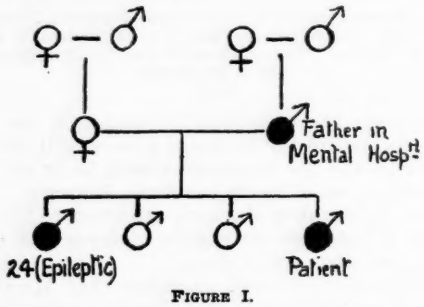

FIGURE I.

CASE III.—T.R.B. was admitted on July 12, 1924. His genealogical tree is shown in Figure II.

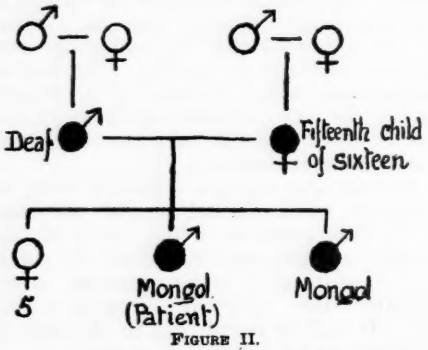

FIGURE II.

The first is a low grade imbecile of an excitable nature and the second a pleasant little Mongolian imbecile.

Very often, however, a neuropathic inheritance is not the sole factor. The patient R.A. (Case II.) was a premature baby.

Alcoholism.

The effect of alcoholic excess is interesting. It may either influence the germ plasm, the fertilized ovum or the fœtus. Moreover, many alcoholics come of neuropathic stock and their abuse of the drug is a symptom of inherent weakness. Tredgold found that in no less than 46·5% of his patients alcoholism was partly to blame—surely an argument for the prohibitionists!

CASE IV.—H.L., *ætatis* twenty years, was admitted on June 3, 1911, and is a low grade imbecile, whose mother and father were both heavy drinkers.

CASE V.—S.F., was admitted on May 22, 1923, and while illustrating alcoholism in a grandfather, shows a general neuropathic taint in that one cousin is in a mental hospital and another is an epileptic. To make matters worse just before the mother's pregnancy both parents had enteric fever and the child when born was overweight, appearing as a breech presentation and thus further complicating the picture. The boy is aged seven years. He was admitted on May 22, 1923, and is a low grade idiot, helpless and cranky. His genealogical tree is shown in Figure III.

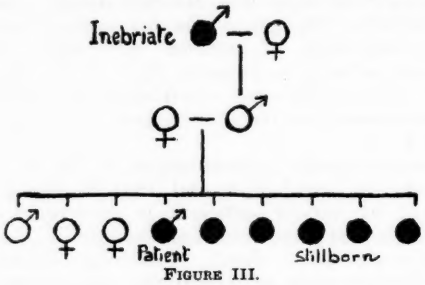

FIGURE III.

Tuberculosis and Syphilis.

Tuberculosis is cited as a predisposing cause in from 22·5% to 56% of cases, but in New South Wales the incidence must be far less, if the records of this Hospital are a criterion. The same may possibly be said of syphilis, for rather to my astonishment when looking through my case papers, only 5% are alleged to have the syphilitic taint. The results of some fifty recent Wassermann tests from patients chosen indiscriminately reveal an even smaller percentage.

Various authorities have published figures in America and Europe ranging from 1·5% to 44%. The subject is one which will repay further study.

CASE VI.—The twin brothers, R.R.F. and E.J.F., admitted on June 14, 1917, are worth reporting. The blood yields a reaction to the Wassermann test. Their age is thirteen. One is a hopelessly crippled idiot and the other an imbecile with just sufficient intelligence to do simple tasks.

Consanguinity.

The general consensus of opinion is that, provided the stock is good, no harmful effect will follow intermarriage. It is a different story if the stock be tainted, as is exemplified by Case VII.

CASE VII.—F.D. was admitted on April 12, 1916. He was ten years of age, a low grade imbecile. His parents were first cousins. The mother had been in a mental hospital several times and a grandmother was considered to be very erratic.

Parental Age.

It is said that the offspring of parents under twenty and over forty tend to be weaker than those between the two ages. One excellent example will serve to show that parenthood in adolescence may not be desirable.

CASE VIII.—M.J.B. was admitted on October 4, 1926, at the age of two and a half years. She is a hopeless idiot, unable to walk or attempt to speak; she was born when her mother was sixteen and father eighteen. A subsequent child is perfectly normal. So far as can be ascertained the family history on both sides is excellent.

MORE DIRECT FACTORS.

After conception it is obvious that (i.) the fœtus is under maternal influence, (ii.) it has to brave the

dangers of birth, (iii.) the child must face the troubles attendant on babyhood, childhood and adolescence. All of these are important in connexion with blight of the cerebral neurones.

The Fœtus.

Worry and physical illness on the part of the mother are admitted to have an influence on the subsequent development of the individual, but it is probable that it is far less potent than our patients consider. Almost invariably in every pregnancy there is a shock or fright or bad news or a cold in the head which can be resuscitated by memory in order to find some sort of a cause for the calamity of mental deficiency in the child.

CASE IX.—The patient was admitted on November 15, 1925, and illustrates results of definite physical illness and overwork. The parents were opening up a new farm. The mother had to go to bed in wet clothes, her feet were swollen, she had little sleep. The child is now feeble-minded with an intelligence quotient of 74·5. As usually happens there are other factors (see also case of S.F.), including a very difficult labour, as shown by the fact that he had at birth a fracture of ankle and shoulder.

CASE X.—Another little patient, I.T., was admitted on March 12, 1926; the mother was intensely worried during pregnancy because the father repeatedly put off the marriage date. The result is an imbecile, but again there is a tainted family history, suicide in a grandfather and the child was somewhat premature.

How many mothers of illegitimate children go through the tortures of the damned, how many use presumably deleterious physical influences, such as ecbolics, yet in how few are the offspring defective in the absence of syphilis or alcohol? This in itself is highly suggestive as to the inadequacy of prenatal conditions as a prime cause of deficiency.

Birth.

Tredgold, one of our greatest authorities, has stated that not more than 1% or 2% of all aments owe their defect to abnormality of labour—an opinion very comforting to the obstetrician. He points out that in the series reported by Little in 1862 the family history was not given. Osler, writing of Little's disease, attributes it to first labours, the use of forceps or to asphyxiated blue babies, but he is careful to point out that many of them are intelligent. In other words, although the extremely characteristic picture of spastic paraplegia associated with idiocy, imbecility or feeble mindedness is undoubtedly due to trauma at birth, yet as a sole cause of mental retardation it is unusual. Very frequently on turning over the records one finds an annotation of long labour, or of a blue baby who was tardy in breathing, but there is nearly always "another nigger in the wood pile" in the shape of heredity or other antenatal cause. Moreover was not the immortal Samuel Johnson almost dead when born and yet he could hardly be classed among the "deficients"? The two following cases appear to be without doubt due to injury at birth, since there is a history of difficult labour, the other children are healthy, the family history good and a lesion was discoverable shortly after delivery.

CASE XI.—W.McC. was admitted on August 17, 1926. The mother noticed after a protracted labour that the child's head was shaped like a pear. The little girl has a facial palsy, diplegia and shows no sign of intelligence beyond an ability to follow hand movements at the age of four.

CASE XII.—J.L.H., a female, was admitted on August 25, 1926, at the age of three years. Forceps were used at a very difficult labour. The baby was lifeless at birth, though it had been lusty *in utero*. Paralysis was early noted on the right side and right arm. The result is a well formed idiot, whose sole interest in life consists in sucking its fingers. Her outlook is hopeless.

Primogeniture and premature birth are sometimes cited as causes of mental deficiency. It is possible that the latter may have a slight importance, but as a first child myself, I am sceptical concerning the former.

CASE XII.—On September 22, 1926, I admitted a nice looking, but poorly developed boy, A.D., aged eight years, who well illustrates the effect of prematurity. He is an imbecile who at the age of eight has a mental age of three. His mother, a very intelligent woman, states he weighed 1·1 kilograms (two and a half pounds) at birth and the doctor pronounced life as quite impossible. She none the less persevered.

Such an apparently clear example is unusual, though numbers of our children appear to have been slightly premature.

Postnatal Causes.

Physical Injury.

When relatives commence to theorise as to causes, they usually add to prenatal shock postnatal injury —a fall from a bed, a tumble out of the nurse's arms. In the majority the alleged trauma is insignificant and the mental deficiency was preexistent. Parents are proverbially blind! The following example is clearer than most, yet as will be noted, there are alternative suggestions.

CASE XIV.—M.M.H., was admitted on September 6, 1919. She is now twelve years of age and is a pleasant-faced low grade imbecile. The parents state that she was well until the age of two, when she was thrown out of a sulky. Two months later she fell out of bed and was unconscious for two hours and was afterwards quite different. When it is mentioned that her family history includes maternal alcoholism and that she is an undoubted epileptic, the significance of the two falls is somewhat changed.

Infections, Toxins et cetera.

The recent work on *encephalitis lethargica*, X disease *et cetera* undoubtedly indicates that cerebral damage by organisms is more frequent than has hitherto been supposed. In like manner it is more than probable that quite a number of mental deficients will be found to owe their poverty of cerebral equipment to previously unrecognized infection. The following case is suggestive of very early interference of this kind, though at this distance of time the details cannot be verified.

CASE XV.—C.A. was admitted on June 14, 1923, at the age of sixteen years. He is a high grade imbecile who works about the grounds. His family history is above reproach and he commenced life as a lusty 3·6 kilogram (eight pound) baby. When a day old, he was jaundiced, at three days old his doctor "gave him up" from infantile paralysis and he was too weak to suckle. At nine months he had severe diarrhœa, at a year and a half broncho-pneumonia. His subsequent illnesses included measles, diphtheria and enlarged tonsils. The mother is confident, however, that the child was deficient early as he walked only at eighteen months.

When the lesion occurs later, the evidence as to previous normality is obviously clearer and the

following examples show without doubt the effect of disease.

CASE XVI. is an example of the effect of whooping cough. R.A.L. was admitted on October 31, 1925, and is now eight years old. His family history is excellent and he appeared to be normal until he had a severe attack of whooping cough. After this he failed to progress and is an idiot, unable even to feed himself or speak. The fact that no paralysis is present suggests infection rather than a vascular lesion due to coughing.

CASE XVII. is an example of the effect of infantile paralysis. M.G., aged fourteen years, was admitted on July 6, 1926. This child was quite healthy until at the age of two and a half years; he was unconscious and had convulsions, afterwards it was noticed that the left side was paralysed. He still retains a slightly spastic gait. Mentally there is medium grade of feeble mindedness with some emotional instability which is undoubtedly attributable to his attack of infantile paralysis.

CASE XVIII. is an example of the effect of *encephalitis lethargica*. G.H. is now thirteen years of age and was admitted on May 6, 1926. He was the brightest boy of the family until the age of thirteen, when he had *encephalitis lethargica*, the attack lasted three weeks and left him with strabismus. He has since been so emotionally unstable and excitable as to justify the term *apache*, though his intellectual development has not had the same set back. His education is a problem, as this type of mental deficiency leads to such antisocial activities.

Convulsions.

Of more than passing importance is the relationship of infantile convulsions and epilepsy to mental defect. Considering the frequency of these conditions compared to the number of aments under care in a mental hospital one would suppose that as a cause they are by no means invariable. Still is of the opinion that in an extremely small proportion of the whole number of infants who have convulsions, there is permanent impairment of intellect. Of epilepsy he states that *petit mal* is more serious than *grand mal* and under the age of three years leads invariably to idiocy. The earlier the onset, the worse the prognosis. It is therefore necessary to differentiate between the two conditions, epilepsy and infantile convulsive attacks and to remember that the latter rarely causes the former.

On looking through case records the truth of these conclusions is borne out because it is rare to find congestive attacks in infancy without later frankly epileptic seizures, the inference being that the first convulsions were really epileptic!

A very careful history is a necessity since the relation of epilepsy to deficiency may be as a cause, an associated phenomenon or a result. One must recognize which is the horse, which is the cart and which is the passenger—often no easy matter!

Whatever may be the ultimate inwardness of the epilepsies and allied phenomena, there is no doubt that inherent instability of the components of the mind plays no little part and this predisposition is often hereditary.

The following two cases illustrate some of these points.

CASE XIX.—K.W.S. was admitted on September 5, 1925, and is now aged six years. His family history is good. Although labour was somewhat difficult and he had some boils at two months, he was a lusty breast-fed baby until the age of twelve months, when he took his first minor fit. Subsequent fits occurred chiefly at night and have become more severe. He is now an aimless, restless idiot who cannot speak.

In the next case, although the inherited instability is more pronounced, epilepsy commenced later and the result is not so calamitous.

CASE XX.—H.O.S., aged eight years, was admitted on May 16, 1925. One relative has had a fit, another is an alcoholic, a brother is a somnambule, his mother had had several miscarriages. He was irritable as a baby. Teeth cutting was late and walking commenced at sixteen months. He went to school at six and was doing well until he took a fit shortly afterwards. These have occurred since at irregular intervals, but in spite of troubles in infancy his intelligence is moderately high and he is able to attend school.

CONCLUSION.

Although unhappily from the eugenist point of view the doctor is summoned to attend the ceremony of birth and is excluded from that of procreation, a knowledge of the principles underlying amentia are of great utility, if only to advise the relatives as to the circumstances surrounding their misfortune.

Let them know that there are many factors, some of them unknown. Rarely, except in syphilis, infection or injury is the cause recognizable with certainty and these cases are uncommon. The wisest course is to look upon the business with philosophy as an accident which might befall the healthiest union. Although heredity and alcohol have received the unenviable distinction of being the princes of blight producers, there are few normal families which on search could not trace an odd suicide, epileptic, dipsomaniac to mar the escutcheon.

At the same time one must not fly in the face of heredity and if consulted as to whether an unmistakable imbecile or moron should have children, the answer should be an emphatic no, even if it necessitates induced sterility or institutional care.

X RAY EXAMINATION OF THE STOMACH.[1]

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THE diagnosis of upper abdominal conditions has always been most difficult, but since the introduction of modern X ray methods there has been a great improvement. The pathological lesions of this part of the abdomen are so numerous that I think it will be better if I limit my remarks mostly to cancer of the stomach, as this is the most important in which an early diagnosis is so essential.

In all opaque meal work I think it is very advisable to give the radiologist all the available information, such as a good clinical history and if possible the result of the fractional test meal. Even then when all the signs and symptoms are correlated mistakes are occasionally made, especially when an

[1] Read at a meeting of the Radiological Section of the Victorian Branch of the British Medical Association and the Surgical Association of Victoria on August 26, 1926.

endeavour is made to get a positive finding in suspicious early cases. An example is the following:

An elderly lady complained of the usual symptoms of loss of appetite and weight, discomfort after meals and she had complete achlorhydria. The opaque meal examination revealed an orthotonic stomach which was slightly ptosed and which had a sharp outline and normal appearance to within a few inches of the pylorus. This prepyloric part, however, did not fill naturally, nor could I push the barium along and distend it naturally and the peristalsis about the part was not normal. The films manifested a persisting irregularity on the greater curvature side and I was most suspicious of an early carcinoma.

In giving my report I suggested that before she was submitted to operation it might be advisable to make a few more films to see if I could confirm these findings, as occasionally when the films are made in certain phases of peristalsis, we fail to get a proper filling of the normal pyloric end, especially if the stomach is of the acute fish-hook type.

This was done four days later and although films were made in different positions, both erect and recumbent, this part of the stomach never distended well, nor did the waves pass over the area naturally.

Under the circumstances she was operated upon and absolutely no abnormality of the stomach was found, nor could a careful search of the rest of the abdomen reveal a lesion which might have caused some reflex disturbance.

Perhaps this was a case in which if belladonna had been given to full physiological action before the second opaque meal, we might have got a different result.

In giving belladonna for the purpose of relaxing extrinsic spasm, I would like to emphasize that it should be gvien until the throat is dry and the pupils are dilated, otherwise spasm will not be relaxed.

The next case is an example of an early but rapidly growing carcinoma.

The patient was a big man past middle age, who had always been strong and well. He suddenly began to fail and had digestive symptoms with loss of appetite, but very little loss of weight. At the meal examination I could never get a good filling of the prepyloric part, and although the body of the stomach was normal and there was active peristalsis, the waves did not travel over the actual prepyloric part. The food left rapidly at first, but there was a small residue after four and a quarter hours.

As he had to return to the country, operation was deferred, but on his return thirteen days later another meal was given and films made.

At the second examination the prepyloric lesion had greatly advanced and this part of the stomach was defective. Deep irregular waves were observed in the body and actual reverse peristalsis with a greatly increased residue, indicating an obstructive lesion.

He was submitted to operation and although the growth was quite removable, there were numerous glands present.

Here is another example of an early prepyloric carcinoma.

The patient was a middle aged woman with a history of four months gastric symptoms with severe hæmatemesis and loss of weight and a complete achlorhydria and blood in the fasting contents.

The films could be made only with the patient in the recumbent position on account of weakness and they revealed a very nodular and irregular prepyloric part. Good peristaltic waves passed along to the incisura, but stopped abruptly and very little food was leaving.

At operation a tumour of the prepyloric part was present. It was about the size of a hen's egg, was not adherent and was removed. A microscopical section manifested an actively growing scirrhous carcinoma.

Another interesting carcinoma case is the following.

The patient was an elderly lady of eighty-two kilograms (thirteen stone) weight, with epigastric discomfort, flatulence and an acutely tender mass in the left upper portion of the abdomen.

The erect examination revealed a stomach with a typical filling defect and other radiographic signs of a gastric carcinoma. Strange to say, the films made with the patient in the prone and supine positions did not show any defective appearance at all.

She came to operation a week or ten days later, when a very localized carcinoma on the posterior wall of the stomach was found. The walls adjacent to the growth were not infiltrated and evidently in the recumbent positions sagged over and gave a sharp outline. This was very confusing, as it is generally assumed that an organic lesion shows a persisting deformity.

Strange to say, about a week later this patient's husband was sent along for a meal and he also had an extensive filling defect and all the radiographic signs of a carcinoma. He also gave a "+++" response to the Wassermann test and within a few days had a large hæmatemesis and died.

The large medullary and the extensive scirrhous types of gastric carcinoma are almost unmistakable, but in the early diagnosis of a small growth there is often the greatest difficulty.

If we have a small localized growth projecting into the lumen of the stomach and can show it persisting in the same position and if we also have the test meal findings and the clinical history, we can generally give a positive opinion.

The early and small infiltrating lesions are very difficult to diagnose and we look for help to the peristaltic waves not passing over a certain area naturally and to this area not being as flexible as usual to palpation by the finger or hand. Here again we want support from the indirect signs of a gaping pylorus and rapid emptying and the clinical examination.

The position of the growth makes the diagnosis difficult or more easy. If on the anterior or posterior wall or at the fundus, a small lesion is very difficult to determine, but fortunately for the radiologist and also for the surgeon most of the cancers are situated at the pyloric and prepyloric part of the stomach.

A small number of gastric carcinomata have all the X ray signs of a simple gastric ulcer, except perhaps that the niche is larger and flatter and the incisura broader. With these appearances it is generally advisable to give a fairly positive opinion and at section of the ulcer and adjacent tissues malignant microscopic signs are generally found.

More than half of the stomachs with cancer take six hours to become empty after the meal. The others generally empty very rapidly on account of the infiltration about the pyloric sphincter causing a gaping pylorus. I have frequently seen the whole four hundred and fifty cubic centimetres (fifteen ounces) of barium gruel leave the stomach within four or five minutes and be as far as the splenic flexure in three hours. On the other hand, when the growth is obstructive, I have seen most of the meal still in the stomach at the end of twenty-four hours.

At one time I held the opinion that the huge dilated stomach secondary to a pyloric obstruction

was almost invariably the result of the obstruction being non-malignant. It takes a considerable time for the stomach to become very dilated and I was under the impression that the metastases and cachexia would kill before a large dilatation was attained. Perhaps in such cases the obstruction was simple at first and malignant changes occurred. A case in point is the following:

A patient, a man of over seventy years, was first examined about two years ago, when a very slight delay was found. The opinion was expressed that it was probably due to adhesions secondary to a cholecystitis and not to malignant disease. Nothing surgical was done and within the next few months he gained 6·75 kilograms (fifteen pounds) in weight. However, he began to show signs of dilatation of the stomach and lost weight and strength. At the second X ray examination two years later a huge dilated stomach with definite delay in emptying was found. The prepyloric part was irregular and defective and the opinion was expressed that probably malignant changes had taken place and this was confirmed at operation.

A few words might be said upon the conclusion that can be drawn from the radiographic examination in regard to operability. Fortunately, most cancers situated beyond the mid-part of the body of the stomach are accessible to the surgeon. The medullary type is generally sharply defined and corresponds very closely with the appearance on the film. On the other hand, the infiltrating scirrhous type is not limited and a lesion which appears to be confined to the prepyloric part, is frequently found at operation to extend along the lesser curvature well up the body of the stomach.

The mobility of the stomach also has to be taken into account and this is often difficult to determine. Sometimes it is apparently possible to move the stomach freely and yet at operation the posterior wall is adherent to the pancreas. I always follow the meal along to the transverse colon in these cases and often find that the large bowel is drawn up and fixed.

To illustrate some of the difficulties we have in interpretation, I would like to mention the following case.

The patient was a young woman of thirty-one. She was thin, but not cachectic and had been vomiting off and on for two years. She had no pain, nor had she had any hæmatemesis. She was treated for a gastric ulcer five years previously. Nothing was palpable at first, but after the meal a hard mass could be felt in the left hypochrondrium. It is always wise to palpate after the meal, as frequently I have been able to feel a mass that has come down from beneath the costal margin as the stomach distends. The diagnosis lay between a carcinoma and an old ulcer with a lot of perigastritis. Also when the lesion looks out of proportion to the patient's general condition it is wise to do a Wassermann test. This patient came to operation and a scirrhous carcinoma was found.

In conclusion I want to stress the point that in a good proportion of early cases of gastric cancer we give an exact and correct diagnosis, but there are cases in which all the available data must be correlated, and then there is often doubt and a re-examination is advisable. In these early cases if all the links fit the chain, operation should be undertaken at once and even if no growth is found, it can hardly be called a needless operation.

CLINICAL AND RADIOLOGICAL DIFFICULTIES IN THE DIAGNOSIS OF LESIONS OF THE PREPYLORUS AND POSTERIOR GASTRIC WALL.[1]

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IT is unfortunate that lesions of the posterior gastric wall, difficult in clinical diagnosis, should also be difficult in radiographic diagnosis, though perhaps indefinite lesions of the prepylorus present an even greater problem.

The most primitive form of alimentary canal is a straight tube. Very soon in evolution diverticula for retention and assimilation of food begin to form in greater or less degree. Apparently the stomach is formed as a pouch or diverticulum from the intestinal tube which is represented by the gastric canal in the human. It may be taken as a working hypothesis that the nerve supply of the diverticulum is not so rich as the original intestinal tube—the gastric canal. The gastric canal is also more concerned with peristalsis than any other part of the stomach; in fact, it is comparable to the mechanism giving origin to the heart beat and it probably gives rise to the peristaltic rhythm.

From physiological considerations, therefore, it would be expected that lesions of the gastric canal would be much more painful than lesions in the rest of the stomach and this is probably the reason why lesions such as ulcer or carcinoma affecting the gastric canal are much more painful in this situation than in any other part of the stomach.

Carcinoma of the gastric canal, because it may occasionally cause pain almost like ulcer, is frequently confused with gastric ulcer in this situation with tragic consequences. We have found out from our experience that probably this confusion arises because pain which is so characteristic of ulcer and which serves to distinguish it from carcinoma, may be almost absent in ulcer of the posterior wall, especially if the ulcer is high and near the fundus and so the ulcer-like carcinoma is confused with carcinoma-like ulcer.

May I illustrate my point by reference to cases and will you permit me to reproduce some preoperative diagnostic dilemmas which, while they appear simple enough in the light of operation, were cause for anxious thought?

Here is the history of an emaciated, thin, cadaverous, malignant looking woman of sixty-six, so ill that she could hardly walk.

Two years ago the patient complained of indigestion with some discomfort after food and her condition was diagnosed as malignant disease of the stomach because of her ill health and general appearance, but X ray examination yielded no evidence of ulcer. With a month's treatment she regained her normal health which was always poor.

One month ago her discomfort returned and came on one-half to two hours after food and finally was present all day, but was aggravated by food.

[1] Read at a meeting of the Radiological Section of the Victorian Branch of the British Medical Association and the Surgical Association of Victoria on August 26, 1926.

The discomfort was relieved by vomiting, but alkalis no longer had any effect. She vomited one-half hour after food and after every meal, even if she took only light food.

Her bowels had become very constipated this last month. Her motions were often black.

She lost 12·6 kilograms (two stone) weight in two months and had become cachectic, haggard, weak and appeared to be in the last stages of a malignant disease. She had a tender spot 2·5 centimetres (one inch) above and to the left of the umbilicus.

Her blood pressure was 110 millimetres of mercury.

Here is the skiagram of her stomach.

The absence of pain, the great loss of weight, the malignant appearance of the patient, the X ray appearances—central irregular isthmus with softly indented edges—all suggested to me a gastric carcinoma.

She was so ill that I thought she could not stand even an exploratory operation, but the definite tender point, the fact that two years ago identical symptoms had disappeared on treatment and the insistence of the patient herself encouraged me to explore her abdomen, though, I admit, much against my will. To my surprise I found embedded deeply in the pancreas a very large penetrating ulcer of the posterior gastric wall which I was able to resect. The patient recovered without any trouble whatever.

Was the profound constitutional disturbance which suggested malignant disease in this patient, due to the affection of the pancreas or to constant small bleedings or to the very chronic ulceration or to the combined effect of all these?

Here again is the history of a thin, cachectic, anæmic man, of thirty-six years, who was rapidly losing health and who presented no clear diagnosis.

The patient was seen in consultation with Dr. Colville. He had been ill for years with epigastric pain from half to one hour after food which was relieved by food and magnesia. He never vomited. He would have two or three bouts of this pain of one month's duration during the year and in the interval a good deal of flatulence. He had hæmatemesis six years ago. His illness completely changed two months ago, when he commenced to vomit frequently after meals and the pain now came on about one and a half hours after meals, but instead of being epigastric it was below and to the left of the umbilicus. In the last two months he had become very sick and cachectic and of malignant appearance and had lost 6·3 kilograms (a stone) in weight.

A fractional test meal revealed practically no free acid.

X ray examination showed a hypotonic stomach with two-thirds residue in six hours. A normal duodenal cap was present with no filling defect and no sign of ulcer.

You must admit that this history is very suggestive of carcinoma.

The operation disclosed a large ulcer of the posterior wall deeply penetrating the pancreas and situated more towards the cardia than the pylorus. Apparently only during the last month an inflammatory infiltration had extended from the ulcer on to the transverse mesocolon and as this is probably in the same nerve field as the colon, it was undoubtedly the explanation of his pain in the left part of the lower portion of the abdomen. This pain was anomalous and had come on in the last months and caused a good deal of confusion in the diagnosis.

Why should this patient have had such delayed emptying time when the pylorus was freely open? It should be noticed that he developed the same appearance of malignant disease as the previous patient when the ulcer penetrated the pancreas and that the X ray report in this patient rather pointed to an early malignant lesion of the pylorus than to an ulcer on the posterior wall.

The history of these patients frequently simulates malignant disease of the stomach and when the test meal reveals no acid, as in this case, the likeness to gastric carcinoma is very great. Indeed, I can quote many similar instances exemplifying how gastric carcinoma and gastric ulcer of the posterior wall are confused, but in fairness to X ray diagnosis I must point out here that the X ray examination reveals the majority of these ulcers, lateral views generally showing distinctive signs.

Not only ulcer, but carcinoma of the posterior gastric wall presents almost a similar difficulty in its X ray as well as its clinical diagnosis, for carcinoma in this situation is peculiarly insidious and "silent" in its onset and in its freedom from pain.

Here is the history of Mr. R., *ætatis* sixty-five years.

The patient was ill for twelve months. He complained that he was unable to work and was not feeling well. He had lost 12·6 kilograms (two stone) in weight in twelve months. He had a moderate appetite and some fullness after meals, but no pain. His bowels were a little more constipated than they used to be. No tumour was felt and X ray examination revealed no abnormality. Some months later he came under the notice of Dr. Sewell, who made a clinical diagnosis of gastric carcinoma and had him examined by a radiologist. Anterior and posterior skiagrams by Dr. Cross were normal, but a lateral view disclosed a deformation and then with attention focussed on the posterior wall, altered technique in antero-posterior radiographs revealed a "filling defect" present in one photograph and not in another. The inconstancy was obviously due to the fact that he had a plaque-like lesion in the posterior wall, for at operation a dumb-bell shaped carcinomatous plaque was found.

This patient, because of his profound anæmia and absence of tumour, supported by normal radiological findings, had been erroneously regarded as suffering from pernicious anæmia.

Recently an almost similar case came under my notice.

A patient whom I saw in consultation with Dr. A. V. M. Anderson, complained of acute indigestion for five weeks. Pain was present under the breast. It was relieved by getting rid of wind and pain was present in the lower part of the back and right side of the thorax. She was afraid to eat because of the pain caused by food. Her pain came on immediately after meals. She had a good deal of dry retching. Her husband gave a "++++" response to the Wassermann test.

Here are two skiagrams by Dr. Hewlett. One shows what in his opinion is a filling defect of carcinoma and the other does not. An inconstant filling defect according to authorities is not carcinoma. Here again the patient had a carcinoma of the posterior wall.

Not all carcinomata of the posterior wall manifest inconstant or indefinite filling defects.

Here is the history of Mr. C. and here is a skiagram of his stomach and here is the carcinoma with part of the stomach removed at operation. Notice how this tumour of the posterior wall stands out

like a potato and what a distinct filling defect in the skiagram it causes. It is also interesting in passing to draw attention to the fact that, although this patient had such an unfavourable looking tumour, he is still alive after four years.

Very definite X ray filling defects are not always due to carcinomata.

Here is the skiagram of a patient with a most characteristic pyloric filling defect which was present in all positions. A very definite X ray diagnosis of cancer was made, but this could not be substantiated clinically because with such a large defect a tumour should be present and in this patient who was thin, should be palpable. Autopsy disclosed that she had Addison's disease.

A clinical and X ray diagnosis in carcinoma on the posterior wall of the fundus near the cardiac orifice is extraordinarily difficult. I have recently seen two patients suffering from carcinoma in this situation in whom X ray examination had failed to reveal a lesion, although there was ample clinical evidence pointing to such a lesion. The undue importance placed on the absence of X ray findings in these instances was the means of delaying treatment in one case for five and in the other for seven months.

Apparently the remedy is a more careful examination by the radiographer of the patient in supine or slight Trendelenburg position.

Equivocal Prepyloric X Ray Manifestations.

It is in the frequently affected region of the pylorus that many errors, both clinical and radiological, are made. To illustrate this may I recount some histories which before operation were cause for interesting but anxious speculation?

A.S., *ætatis* fifty-two years, complained of epigastric pain, fullness and discomfort about half to one hour after meals, made worse by an ordinary diet, but relieved by alkali. He had the X ray appearances of a prepyloric carcinoma. He had a definite epigastric tender spot and had lost 4·5 kilograms (ten pounds) weight in twelve months. He looked very ill and anæmic, was unable to work and his blood pressure was 100 millimetres of mercury. He had got steadily worse with twelve months' treatment.

Operation revealed nothing whatever to account for either his clinical or X ray manifestations. Probably he suffered from some form of neuromuscular incoordination. In this instance both the X ray and clinical diagnoses were wrong.

Here follows a history in which the patient gave very little clinical evidence whatever of a gastric carcinoma. In fact, he had been under excellent medical observation for six months.

He had lost his appetite, had belching, but no indigestion and no pain after food. He had never vomited, except once and that quite recently. Latterly he complained that he felt something like a ball of wind in the epigastrium. He had some difficulty with his bowels, having had to take a good deal of medicine, was losing 0·45 kilogram (one pound) in weight per week and he had recently become anæmic without any obvious cause.

A routine X ray by Dr. J. Clendinnen revealed a definite prepyloric defect and now the clinician's attention being directed to this region by the skiagram, he found a definite local resistance.

On the other hand, equivocal prepyloric X ray appearances may divert attention from a lesion which shrewd clinical acumen should point to. For instance, a woman of fifty complained of pain to the left of the umbilicus and towards the sigmoid. It was extraordinarily severe, colicky in nature and lasted a few hours and then got better. She had had many attacks. Only in one instance had the pain occurred in the upper right segment of the abdomen. The radiographic report was prepyloric and duodenal deformation possibly from the gall bladder. A surgeon operated on this and found nothing. The patient's trouble recurred. It was then found at a second operation that a small fibrous ovary incarcerated in a small unobvious femoral hernia was the cause of her pain.

Deformation of contour in the prepyloric region is much more often due to an intrinsic gastric cause, such as carcinoma, than to an extrinsic cause, such as the gall bladder. In fact, in a large number of operations for gall bladder disease I see only rarely an instance in which even in the most diseased gall bladder possible mechanical deformation of duodenum or prepylorus could occur. Three patients in whom a radiographic diagnosis was deformation from possible gall bladder disease or some other extrinsic cause, turned out at operation to have early uniformly carcinomatous prepyloric infiltration. So I have come to regard even doubtful X ray appearances in this region with great apprehension.

Sometimes small ulcers in the prepyloric region where the peristaltic waves are deep, may be difficult to detect with X rays.

Here is the history of a patient, aged forty years, who had indigestion for years.

He had epigastric pain three to four hours after food and frequent vomiting when he had half finished his meal. Three months ago he vomited "coffee grounds." He had a tender spot 2·5 centimetres (one inch) above the umbilicus in the mid-line and a blood pressure of 210 millimetres of mercury, with a fair amount of albumin in his urine which had a specific gravity of 1008. The surmise was that his gastric symptoms were secondary to a chronic uræmia, but if you observe this skiagram taken by Dr. Cross you will see a tiny "niche" in which, though there was no associated spasm whatever, he made a diagnosis of ulcer. This small ulcer was confirmed at operation. It had probably developed on a basis of chronic Bright's disease for the patient died of this about two years afterwards.

It is not surprising that these small duodenal-like prepyloric ulcers are often missed by X rays as in the following instance:

E.G., a patient, was well until two years ago, when he commenced vomiting. This was in association with pain over the region of the gall bladder and it generally came about 5 p.m. Vomiting would sometimes keep on for two to three hours, but only the contents of the stomach would be vomited. He had lost 10·8 kilograms (one stone and ten pounds) in weight. He was exquisitely tender over the spot where the pain was, that is, over the duodenum. Pain was relieved by bicarbonate of soda. X ray examination revealed no abnormality. Even an operation failed to reveal this prepyloric ulcer which was discovered near the pylorus immediately under the gastrohepatic attachment at a second operation twelve months later.

And so it is that the clinician and radiographic diagnostician besides being helpful to each other are also suggestive, but the clinician is being constantly chastened by operation and autopsy findings and so there is preserved to him a desirable "clinical humility"; the X ray diagnostician, emboldened by the wonderful success of his art, must not be allowed to become dogmatic and he must be introduced to the same purifying influences as the clinician in order that he may develope an "X ray humility" and so still further advance his art and that is the spirit of this contribution to the discussion tonight.

THE SCAR IN CÆSAREAN SECTION: WITH REPORT OF TWO CASES OF RUPTURE OF THE UTERUS.[1]

By CONSTANCE E. D'ARCY, M.B., Ch.M.,
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AN exact study of the Cæsarean scar has been made by Schwartz and Paddock and has been published in the *American Journal of Obstetrics and Gynecology,* August, 1925.

Their material consisted of the area of incision in three human and sixteen guinea pig uteri.

They examined the scars histologically and their conclusions are that the new tissue is composed of fibroblasts, forming in early proliferation along the capillaries, not only along the line of the incision, but also between the adjacent muscle bundles. They found definite scar tissue clearly demonstrable in twelve to twenty-five days after incision.

In the later stages the scar tissue became contracted and was difficult to make out and differentiate from the uninjured uterine wall. Endometrial cells were readily transplanted into the scar and on the peritoneal surface. The authors confirmed the findings of previous investigators that a deposit of fibrin between the muscle edges forms the basis of union and point out that in well adjusted muscle edges this deposit is very small. They demonstrated that sutures placed too tightly, especially in the deepest row, cause necrosis with a gaping inner defect in the wound. This is filled by granulation tissue which is slow in formation, giving the more rapidly proliferating endometrial cells an opportunity to enter. Extensive cutting through of sutures causes a great amount of necrosis and this is held to account for thin scars which are lined with endometrial cells. In two of the human cases there was reaction and necrosis around catgut sutures which suggested to the authors that catgut was a less suitable suture material than silk. They conclude that the most important thing in the technique of Cæsarean section is to obtain good wound approximation with a minimum amount of suturing and with as little tension as possible. A single row of buried, uninterrupted sutures and another running suture after the method used by Williams should give the best results.

These histological findings are in accordance with clinical experience. I believe that suppuration along the uterine incision and seepage into the peritoneum are caused, not by insufficient, but by oversuturing. I have seen surgeons demonstrating at the operation table what they held to be the right way to suture, applying and tieing the stitch until the tissues were just blanched at the wound edge, claiming that when the uterus involutes in the first few days before the scar tissue is formed, the sutures are then just right, whereas if they were less tightly tied they might hang out loosely, and so cause seepage from the wound. I believe that sutures so applied are just too tight, and would like to draw attention to the analogous case of unduly tight suturing of the cervix in trachelorrhaphy. Most of us have seen late hæmorrhage following trachelorrhaphy and on inspection have found that the bleeding came, not from failure of suture material, but from separation of sloughs caused by necrosis of tissue which has been strangulated in stitching. I have always used interrupted sutures in the so-called classical section, using Number 4 plain catgut, taking in all layers except the mucosa and a continuous layer, applied in the Lembert manner, of Number 2 or Number 3 plain gut to overrun and cover this line of sutures. In my limited experience of the low cervical operation I have used two rows of continuous catgut sutures, but in future I shall employ interrupted sutures for the first row. For a time I made a point of first incising the peritoneal surface before opening into the uterus and of reflecting a flap of about 1·25 centimetres (half an inch) on each side, so as to insure more perfect peritonealization of the wound, but I found that there is inclined to be a little oozing under the flap, and felt that after all it might be defeating its own object.

I usually tie as I go along, so as to save bleeding, taking care to adjust the last two or three stitches at the bottom end of the wound and leave them untied until all others have been tied. I have often noticed in doing second sections that when a scar is weak, it is usually at the lower end and believe that it is due to the fact that sutures are tied as the surgeon goes along, without taking any precaution for nice adjustment at the lower end. The result is that the needle, taking a haphazard bite, involves some mucous membrane and decidua which, continuing to proliferate as shown by Schwartz and Paddock, weakens the scar. In this connexion it is interesting to note that Geller made an histological study of a scar removed from a uterus which had been subjected to three Cæsarean sections. In the region of the scar two islands of glands were found which were similar to uterine glands. He claims that the lower cervical operation is preferable, because the mucosa in the lower uterine segment is not definitely hypertrophied and not transformed into decidua and hence, if cervical mucosa should be transplanted into the wound, it would not produce distension of the wound.

[1] Read at a meeting of the Section of Obstetrics and Gynæcology of the New South Wales Branch of the British Medical Association on September 29, 1926.

The time has come for us all seriously to reconsider our position in regard to continuing to perform the classical operation in preference to the low cervical section. The advantages claimed, apart from the histological one just quoted, are many. As the incision is in the thinned-out, lower uterine segment, it would be less disturbed by uterine contractions in the puerperium, than when the incision is in the thickened *corpus uteri*. (Schwartz has collected fourteen cases in which the uterus ruptured under the action of the after pains with all kinds of suture material, even silver wire.) There is likely to be less adhesion of bowel and other abdominal organs. As the scar is low down, better drainage is insured and so there is less probability of peritonitis. The intestines do not come into the field during operation. It is claimed that the outlook for subsequent labours is more favourable after the cervical operation than after the classical, this holding equally for the extraperitoneal and intraperitoneal operation, with the exception of cases of labour with the placenta in the region of the scar.

The first case of rupture of the cervical scar was reported by Vogt. In this case the rupture was not suspected, but when the bladder was stripped down in the course of operation the placenta was found and no muscle wall. This patient had one spontaneous delivery two years previouly and one year after the first section. Rupture of a scar, placed high in the uterus would surely have caused graver symptoms than this one. Huber collected lists of thirty-six patients who had extraperitoneal Cæsarean section, of these seventeen were subsequently delivered naturally and nineteen by repeated section. In the latter cases at the second operation the scar occasionally caused trouble. Although it is held by De Lee that rupture through the cervical scar is much less common than through the scar in the body of the uterus, it seems to me that the operation has not been done sufficiently widely by both good and bad operators, to allow anyone to be dogmatic on this question.

My own experience of the low operation has been very limited, but happy. So much so, that about a year ago I decided to practise it more frequently. About that time, however, three patients came into my hands for second Cæsarean section. I had previously operated on two of them myself and one had been operated on at the South Sydney Women's Hospital. All three had been done by the classical method and I was again using that method, the more easily to get access to the tubes with the object of resecting portion of each. In all three the result of the previous operation was perfect, there were no adhesions in the abdomen, the scar was not visible in its whole length and could only with difficulty be detected. After the uterus contracted, the scar came down in exactly similar manner to the rest of the uterus and the uterus was not thinner at the line of the old scar than elsewhere. I reasoned, therefore, that one could not want a better result than this and after all it is a sound principle to follow, that when one finds a good method, keep to it. I believe, however, that for potentially infected patients the extraperitoneal cervical operation is to be preferred, though in some cases the modified Porro operation must still be practised.

My mind is open to the advantages offered by the newer method. I am impressed by the lessened bleeding in the cervical operation and the consequent slow deliberation the surgeon may enjoy, and also with the fact that the baby breathes at once, as in normal delivery and may be left to have the benefit of the placental circulation while the cord pulsates, if that seems desirable.

I shall now relate the history and comment on two cases of rupture through the scar (both in the body of the uterus).

Case I.—F.R., aged eighteen years, in her second pregnancy, was admitted to the Royal Hospital for Women at 11 p.m. on November 4, 1920. She brought a letter of recommendation from an experienced general practitioner, which ran: "Cæsarean section was done on this patient three years ago. Labour began at 12 a.m. Pulse now 170, and not too good. The actual cause of obstruction to delivery not accurately determined at examination." I saw her soon after admission. Her pulse was 160 and temperature 35·6° C. (96° F.), but her general appearance was not suggestive of profound collapse. She had slight bleeding *per vaginam* and abdominal pain, but not labour pains. On palpation of the abdomen the fœtal parts were felt unduly plainly, no fœtal heart sounds were heard. A diagnosis of rupture of uterus through Cæsarean scar was made. I opened the abdomen and found a dead male child, weighing 3·6 kilograms (eight pounds) and measuring fifty-five centimetres (twenty-two inches), free, in the abdominal cavity. The Cæsarean scar had been adherent along its whole length to the anterior abdominal wall. On the right side it was still adherent and much blood had been extravasated between the layers of the abdominal parietes, evidently forced there before the band of adhesions on the left side gave way, releasing the fœtus into the abdomen. I freed all adhesions and performed supravaginal hysterectomy. The patient made an uninterrupted recovery.

I made inquiries at the hospital where this patient was first operated on, and the details of her operation were supplied as follows:

The patient was admitted at 6.30 p.m. on May 4, 1918, in her first pregnancy. Labour commenced at 2 a.m. the same day and the membranes ruptured at 3 a.m. Section was performed at 11·5 a.m. on May 5, 1918, on account of disproportion. A female still-born child weighing 4·5 kilograms (ten pounds) was removed; the child had *spina bifida*. A note was made that the uterus had an offensive odour. The patient had fever during convalescence which was protracted, a temperature of 39·2° C. (102·6° F.) being noted on the thirteenth day. The patient was fifteen years of age at the time of this operation.

At her second pregnancy, she did not engage a doctor, but an untrained midwife, nothing daunted, undertook her case and did not send for a doctor until her symptoms became urgent after being in labour all day. There was evidently gross infection of the uterine wound in this case after her first section, probably due to the fact that she was left in trial labour unduly long, from 2 a.m. on the fourth to 11 a.m. on the 5th, with the membranes ruptured. Notwithstanding this, her scar withstood the onslaught of labour for many hours before it ruptured and no doubt all would have been well with her, if skilled attention had been available earlier.

Case II.—A.L. was admitted to the Royal Hospital for Women at 4 a.m. on August 25, 1923. Her last menstrual period was on December 18. She gave a history of

Cæsarean section in 1921, for concealed accidental hæmorrhage. At 9 p.m. on the evening before admission the patient felt a sudden, sharp pain, followed by a little vaginal bleeding and a tearing feeling in the lower part of the abdomen. She also said, "a lump came up" in the lower part of the abdomen. She diagnosed her own condition as accidental hæmorrhage, having had previous experience of this condition. She went to bed, but at 2 a.m. felt an urgent desire to micturate and getting out of bed for this purpose, felt severe abdominal pain and collapsed, bleeding fairly freely from the vagina. She felt fœtal movements up till 2 a.m., but none after. A doctor was called in and he made a diagnosis of concealed and external accidental hæmorrhage and sent her to hospital. On admission her temperature was 36·7° C. (98° F.) and the pulse 100 and of fair volume. She was restless and was vomiting clear fluid. The urine contained no albumin, no sugar and no pus. She was given morphine 0·01 gramme (grain one-sixth), when her restlessness ceased. She then looked well and showed none of the symptoms usually associated with rupture of the uterus.

On examination, the abdomen was found distended generally, but soft, the engaging part high above the brim, but the fœtal attitude was such as one finds in a normal case. There was dulness in the flanks. There was no dilatation of the cervix and slight bleeding. Patient said her abdomen had been bigger for the last few hours. Diagnosis of rupture of the uterus was made. The abdomen was opened, when free fluid and blood escaped. The amniotic sac containing the fœtus was lying unruptured in the abdominal cavity, part of the sac still being held within the opening in the uterus. This accounted for the folded up attitude of the baby. The fœtus in the sac was removed, weighed 2·7 kilograms (six pounds) and measured 47·5 centimetres (nineteen inches) in length. Adhesions were separated and supravaginal hysterectomy was performed. It was noted that the edge of the uterine wound was fibrous and infolded. The patient made a good recovery and left hospital on September 11, 1923.

The operating surgeon has been good enough to give me the history of the first section.

The patient was admitted to hospital at 2 p.m. on September 15, 1921, suffering from concealed accidental hæmorrhage and albuminuria. Her last menstrual period was on December 25, 1920. She was submitted to Cæsarean section at 2.45 p.m. on the day of admission and delivered of a macerated male fœtus, weighing 2·2 kilograms (five pounds). Interrupted, plain catgut sutures were used, oversewn by continuous catgut. She was profoundly collapsed after the operation.

On September 17, 1921, it was noted that her general condition was poor, the abdomen very distended, the pulse rapid and feeble. On September 23, 1921, a blood transfusion of five hundred cubic centimetres whole blood was given, on the next day her condition was much improved and her convalescence was rapid after that date.

The blood counts were interesting before and after the transfusion.

On September 23, 1921, before the transfusion the red cells were 2,300,000 and the leucocytes were 63,000 per cubic millimetre, the hæmoglobin value was 30% and the colour index 0·6.

On September 26, 1921, after the transfusion the red cells were 3,000,000 and the leucocytes were 30,000 per cubic millimetre, the hæmoglobin value was 45% and the colour index was 0·5.

The highest temperature reading during convalescence was 38·3° C. (101° F.) on one occasion, the average height of temperature was 37·2° C. (99° F.).

On June 6, 1923, she was seen by a consultant who advised her to have Cæsarean section for the second pregnancy without allowing labour to progress.

In this patient, as in all patients with accidental hæmorrhage associated with toxæmia and albuminuria that I have seen opened, there was hæmorrhage into and between the muscle fibres. This damaged condition of the muscles must interfere with the normal process of healing. When Cæsarean section was first advocated for concealed accidental hæmorrhage, it was generally advised to perform hysterectomy also, in order to avoid *post partum* loss. It would appear that the possibility of weak scar supervening on classical section, in the presence of damaged muscle wall would add a further reason for hysterectomy. In this case the uterine scar ruptured before term, without the patient being in labour and it is to be noted that the implantation of the placenta was not on the scar, but on the posterior wall. A feature, common to both patients, was an apparent difficulty in diagnosis. Both were seen by capable practitioners before admission and the condition was not diagnosed by them or by the admitting house surgeons. This recalls cases of rupture of the uterus reported by Drs. Isbister and Throsby to this section which did not present the textbook picture and in which the condition was undiagnosed. And the fortunate circumstance common to both patients was an easy convalescence. I attribute this largely to the fact that neither patient had any manipulation before the uterus ruptured and so was not infected. Most patients with uterine rupture whom we meet, have been subject to attempts at forceps extraction, version or other procedure before we see them and this accounts for the high percentage of peritonitis in such patients. Moreover, the amount of blood loss in rupture through a Cæsarean scar is likely to be less than in the other rupture (usually in lower uterine segment, where large blood vessels are likely to be torn).

A CONVENIENT METHOD OF GROWING CHICK TISSUES IN VITRO.

By W. MOPPETT, M.B., Ch.M. (Sydney),
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IN carrying out any experimental investigation on tissues grown *in vitro* an all-important factor is to have a simple and reliable technique for setting up the cultures and obtaining growth. If such a condition is not attained, all the time of a worker is apt to be devoted to the mere process of obtaining growth and any experimental work that is subsequently performed may lead to wrong conclusions owing to the large number of variable factors both in the growth medium and in the tissues themselves.

The following method may be of some value to those engaged in study of chick tissue cultures. Growth is obtained in the fluid which surrounds the embryo and is in contact with the inner surface of the allantois so that it may be called allantoic fluid. It consists of a pale yellow opalescent liquid of a specific gravity of approximately 1010. It contains a trace of albumin and a certain number of cells. When freshly obtained the pH value is about 6·2. This is most important as tissues grow best in such a slightly acid medium which reproduces the conditions obtaining in actual tissue fluids. Cultures *in vitro* are very sensitive to any

Figure Showing Cultures of Pigment Cells from Retina of a Chick.

variation of the pH value. As an abundant supply of fluid is always available it is desirable to use a fresh sample each time. A fertile egg is taken at about fifteen days' incubation and after sterilization of the shell with alcohol a small portion is sawn out. The underlying shell membrane is then divided and the allantois punctured, any visible blood vessel if possible being avoided. The fluid may then be drawn off with a sterile pipette.

In setting up the cultures the tissues, conveniently taken from the embryo which has already supplied the growth medium, are divided in allantoic fluid in preference to saline solution. The pieces to be grown are then placed on a cover slip which has already been moistened with a drop of fluid. They become fixed quite well in this manner and there is no opportunity for them to dry up. If the operation has been at all prolonged, it is advisable to draw off the drop and add fresh fluid before closing up. In this manner the growth medium is not concentrated by evaporation and no carbon dioxide is lost.

Good growth is obtained in twenty-four hours. The cover slip is often somewhat crowded with lymphocytes and other blood cells which grow out in a most luxuriant manner. Fibroblasts grow in quite a healthy manner and a carpet of epithelial cells can be obtained from a kidney fragment. The accompanying illustration shows a culture of pigment cells from the retina of the chick. They grow quite easily though somewhat slowly. At first they form a regular pavement, but later as the culture gets older, individual pigment cells tend to migrate over the cover slip.

The observations indicate the facility with which growth may be obtained *in vitro*. The fluid probably consists of excretory material and yet vigorous growth is obtained even in an infected specimen. Moreover cells remain healthy for quite long periods, sufficient for most experimental procedures and refeeding need be done only after three or four days.

CHEMIOTAXIS IN TISSUE CULTURE.

By W. MOPPETT, M.B., Ch.M. (Sydney),
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THE *in vitro* cultivation of living tissues affords a convenient method for studying the phenomenon of chemiotaxis or rather some of the laws which govern the movement of individual cells as they migrate over the coverslip. Apart from tissues such as kidney which give rise to a continuous epithelial carpet, there is a general tendency for individual cells to move away in a symmetrical fashion from the parent fragment. It is not easy to find an explanation for this. Presumably the crowding of cells in and near the fragment produces a local concentration of excretory material. On the other hand there is evidence that growth supporting substances which diffuse from the parent fragment, maintain the life and activity of the migrating cells. Whatever the cause may be, a centrifugal directive force is in evidence. Chemiotaxis may be investigated by modification of the condition of cultivation in such a way as to superimpose a distinct unidirectional migration of cells as they multiply and leave the fragment.

The following are the details of some preliminary experiments devised to find out the possibilities of this method of investigation. A very convenient tissue to grow for the purpose is the spleen of the embryo chick. The cultures may be conveniently set up in allantoic fluid in the manner described in the previous paper. It is also possible to obtain

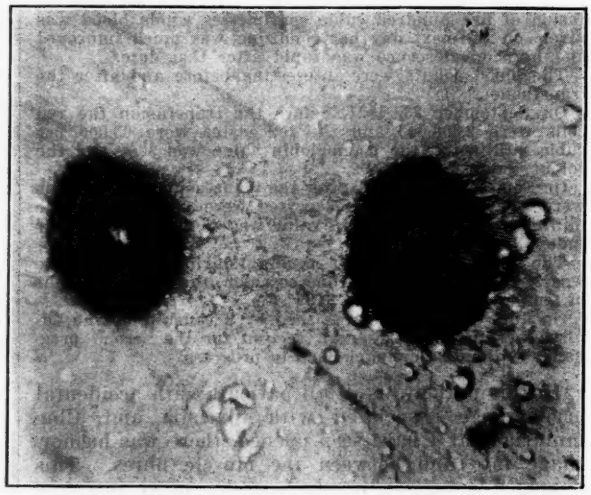

Figure Showing Migrating Cells in a Glucose Preparation.

sufficient growth in amniotic fluid. The latter is perhaps a more convenient medium. It is easy to obtain without contamination by blood corpuscles or other cells. Moreover the growth from the spleen fragment is not so luxuriant and it is easier to obtain a clear cut result. When a fragment of spleen is set up in the above manner, a growth or rather migration of lymphocytes and blood cells is obtained within a few hours and it continues for some days at a fairly steady rate. The growth is very reliable and apart from disturbing influences it takes place in a perfectly symmetrical manner from the parent fragment. In order to obtain a selective movement of cells a chemical substance is allowed to diffuse into the culture. Glucose may be mentioned as a convenient example. Fragments of marble are taken and soaked for some days in a strong solution. Before the cultures are set up the marble is soaked in saline solution for about twenty minutes. This leaves just a trace of glucose still adhering to the surface. One of the prepared fragments is then placed in the droplet about two millimetres from the piece of spleen. Presumably the glucose still remaining slowly diffuses out into the growth medium, producing a concentration gradient between the tissue and the marble fragment. There are certain special precautions to be taken in connexion with the above cultures. It is desirable that they should not be disturbed in the interval between setting up and observation. Otherwise the glucose would become mixed through the droplet and the directive effect of a concentration gradient would be lost. It is a difficult matter to fix the marble fragment. It has no natural adhesive properties and must be held in place by the force of surface tension. This is secured by using a very thin droplet. When set up in this way, the specimen will stand a reasonable amount of mechanical violence without displacement of the fragments. It is also essential that both the spleen and marble fragments should be of approximately the same size and shape and they should be near the centre of a circular droplet. When the various manœuvres are carried out under aseptic conditions, the work is rather tedious. The method may be applied to quite a variety of substances. Marble or other suitable vehicle is soaked in quinine sulphate and the cultures are prepared in a similar manner.

For control experiments the marble fragments are soaked in saline solution and otherwise a similar technique is followed out. It is desirable to immerse the control fragments in a little of the growth medium for a few minutes in order that they shall be absolutely neutral when placed in the cultures.

Observation is made about twenty-four hours after setting up. Migration for two or three millimetres readily takes place. Later on too many cells grow out from the fragment and the picture is not so striking. In the case of a glucose preparation a column of cells may be observed migrating from the spleen to the marble fragment. The illustration shows such a preparation. It is difficult to secure a low power photograph of a hanging drop preparation, but the main features can be seen. In an early specimen the slide is quite free from cells except in the immediate vicinity of the spleen and marble fragments and in the region between them. Control preparations at this stage show only a slight symmetrical outgrowth of cells round the spleen fragment.

Quinine in a very dilute condition also shows a positive chemiotactic effect. The column of migrating cells connecting the two fragments is just as striking as that obtained in the case of glucose. The results depend on a suitable concentration of the chemical added. If the strength is too low, the effect may be delayed or absent. Again, if too high a concentration is used the effect is rather that of negative chemiotaxis. Negative chemiotaxis is, however, difficult to demonstrate. Needless to say any considerable concentration of a foreign substance in the growth medium is incompatible with the life of the culture.

The experiments indicate an interesting method of studying the phenomenon known as chemiotaxis. The cells concerned are mainly lymphocytes which grow out individually over the coverslip. The movement is probably of the amœboid variety, though this is not known for certain. The directive force appears to be that of a concentration gradient which one would infer to be present. The cultivated tissue cells do not show the discrimination which is apparent in the movement of independent organisms such as amœbæ. They move alike towards glucose and quinine, a protoplasmic poison. This action would probably be summed up by the term curiosity.

Reports of Cases.

A CASE OF SYSTEMIC BLASTOMYCOSIS WITH THE FORMATION OF A MYXOMATOUS LOOKING TUMOUR-LIKE MASS.[1]

By J. BURTON CLELAND, M.D.,
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THE following remarkable case is in point of time the first known example of blastomycosis occurring in man in Australia, since the patient became ill towards the end of 1915 and died early in 1916. Though the material was worked up at the time, it has escaped arrangement suitable for publication until the present.

During the interval several Australian cases of blastomycosis have been recorded, though clinically none of these presented the same features as this case. Dr. H. Swift and Dr. L. B. Bull[(1)] were in 1917 the first to record an Australian case of systemic blastomycosis. The primary and only lesion was that of meningitis. The organism resembled *Cryptococcus gilchristi* and cultivation was successful. J. R. Williams[(2)] in 1922 described another case of blastomycotic meningitis where there were also lesions in one lung. This lung tissue showed the presence of a gelatinous material in which were countless numbers of the parasites and the meningitis was believed to be secondary to the lung lesion.

In 1922 Charles Badham[(3)] reported on the organism found in the cerebro-spinal fluid of a patient who died of a blastomycotic meningitis in the Coast Hospital, New South Wales. He considered that the organism was probably identical with *Saccharomyces tumefaciens* (Curtis).

[1] Except for recent revision, the working-up of this material was carried out in the Microbiological Laboratory of the Department of Public Health, Sydney, during tenure by the author of the office of Principal Microbiologist.

In 1923 D. L. Barlow[4] recorded in full a case of primary blastomycotic meningitis in a girl, aged three and a quarter years, a case to which he had previously made reference.[5] He was able to grow the organism on egg medium and Loeffler's serum and in subcultures on agar and in glucose broth. A dog was successfully inoculated by lumbar puncture.

The present case is of considerable interest inasmuch as a "tumour" in the right iliac region which was clinically thought to be an inoperable sarcoma, proved on microscopical examination to contain numbers of large, thick-walled spherical bodies of a parasitic nature, evidently belonging to the yeast-like fungi and clearly responsible for the condition.

G.W., a male, aged forty-seven years, consulted Dr. Good, of Young, for a swelling in his side. Dr. Good referred him to Dr. Clubbe in Sydney. From the clinical appearance there seemed little doubt that the case was sarcomatous; nevertheless on Dr. Clubbe's recommendation he was admitted to the Coast Hospital on September 28, 1915, to see whether anything could be done for him. For the following clinical details we are indebted to Dr. D. Wallace, then of the Coast Hospital, Sydney. The patient stated that he had lived all his life in the vicinity of Young, New South Wales. His illness began in July, 1915, about six weeks before his admission to the Coast Hospital. He first noticed soreness in the region of the right iliac crest which he thought was due to an injury. Two weeks later a swelling was noticed in this region; the tenderness meanwhile became worse. He began to suffer from aching pains in the tumour which were worse at night. No other noteworthy symptom was noticed.

On examination on admission he was found to be a fairly thin subject, but not cachectic. His weight was sixty-eight kilograms (ten stone eleven pounds). His usual weight before the onset of his illness had been 69·3 kilograms (eleven stone). His gait showed a marked limp with the right leg; passive movements at the hip joint were quite free. There was a tense elastic smooth swelling about ten centimetres (four inches) in diameter with its centre situated about the mid-point of the right iliac crest. The skin over the summit was red and the mass was tender on palpation. It was not circumscribed, but shaded off gradually on all sides into the normal tissues. The history and clinical features were those of a rapidly growing sarcoma.

The mass was explored with an aspirating needle and some gelatinous material obtained and submitted for examination. The microscopical examination made at the laboratory showed numerous parasitic bodies, to be described later on, enmeshed in a delicate reticulum. The bodies at this time were not recognized as being parasitic, being considered in fact from their unusual characteristic as having accidentally contaminated the specimen.

On October 20 the tumour was incised and its contents evacuated as far as possible with a blunt curette. The appearance of this material suggested a myxosarcoma and the marginal infiltration, with total destruction of all the tissues including bone in the centre, still further supported this view. On such a provisional diagnosis, a course of Coley's fluid was begun soon after the operation, but was discontinued after three days when the pathological report came to hand. "Salvarsan" 0·3 gramme was then given, as the pathological report suggested that the parasites might possibly be protozoal and this dose was repeated in one week. The wound meanwhile was irrigated with a solution of quinine from the analogy of the effect of this drug on malarial parasites.

By December 8 there had been no improvement. Potassium iodide was given daily in doses of two grammes (thirty grains), the amount being increased gradually.

On December 17 the wound was gaping widely with a characteristic gelatinous material presenting at the surface and was discharging freely. Under general anæsthesia the cavity was explored and curetted with a blunt instrument. Some fragments of bone were removed. There had been considerable extension of the process since the first operation. It now reached upwards to the lumbar spines, downwards below the great trochanter and inwards as far as the peritoneum.

By January 15, 1916, the wound had become infected and the surrounding skin was erysipelatous.

By January 23 there was definite improvement, the acute infective process having subsided. The wound presented healthy granulations and the swelling caused by the tumour had disappeared. The patient had been taking potassium iodide since December 8 continuously in increasing doses and now was receiving five grammes (seventy-five grains) every day. It was now decided to try the effect of 0·15 gramme (one-quarter of a grain) of emetine twice a day.

On February 16 it was noted that the improvement had not been maintained. The granulations were œdematous and unhealthy in appearance. The patient had now had emetine twice a day for ten days, the first injection being on January 23; on February 2 this was increased to 0·03 gramme twice a day and continued for three days. There had been no improvement as a result of the emetine treatment.

As the patient did not improve and found himself steadily going down hill, he decided to leave the Coast Hospital and return home to Young. Dr. Good saw him again and found that much of the innominate bone had necrosed away. Death occurred during April. A *post mortem* examination was not obtained.

Description of the Parasitic Bodies Found.

In examination in normal saline solution of the fluid exuded from the gelatinous material obtained by scraping the growth, large numbers of spherical to oval bodies were seen. These were present in very large numbers and comprised nearly all the elements that could be seen. They varied considerably in size, some being pear-shaped and about 8·5 μ in diameter and others being apparently spherical and 10·4 μ in diameter, with walls about 0·4 μ thick. Still larger bodies occurred with a diameter of 15·5 μ and the wall 2 μ thick. Inside the thick wall could be detected a varying number of different sized small globules, but nothing indicative of spores. A large number of the bodies showed a small, definite projection at one end forming a kind of knob. From the number seen with this little projection it is possible that all possessed it and that in those in which it was not immediately seen, the knob was hidden from view. In addition to this small knob pear-shaped projections were noticed in a number of instances originating from the area of the knob and varying in size from a mere bulging to a pear-shaped daughter cyst as large or nearly as large as the parent cyst and exactly like it in all particulars. When the fluid containing these suspended bodies was treated with acetic acid and various fixatives, the cysts were found to be surrounded by a mucoid-looking envelope of very considerable extent which surrounded correspondingly daughter cysts as well as parent cysts and occasionally showed a bulging opposite the projection noted in the parent cyst. In a cyst 10·5 μ in diameter the mucoid envelope ranged from 2·5 μ to 5 μ in thickness.

Sections of the gelatinous material fixed in various ways showed numbers of these cysts embedded in a delicate loose reticulum with occasional thin-walled blood spaces. They seemed to occupy no particular positions in this delicate reticulum, but just lay irregularly scattered throughout it. No further structural details could be detected in the bodies, nor were there any special aggregations of them or any indication that they had origin from still larger mother bodies.

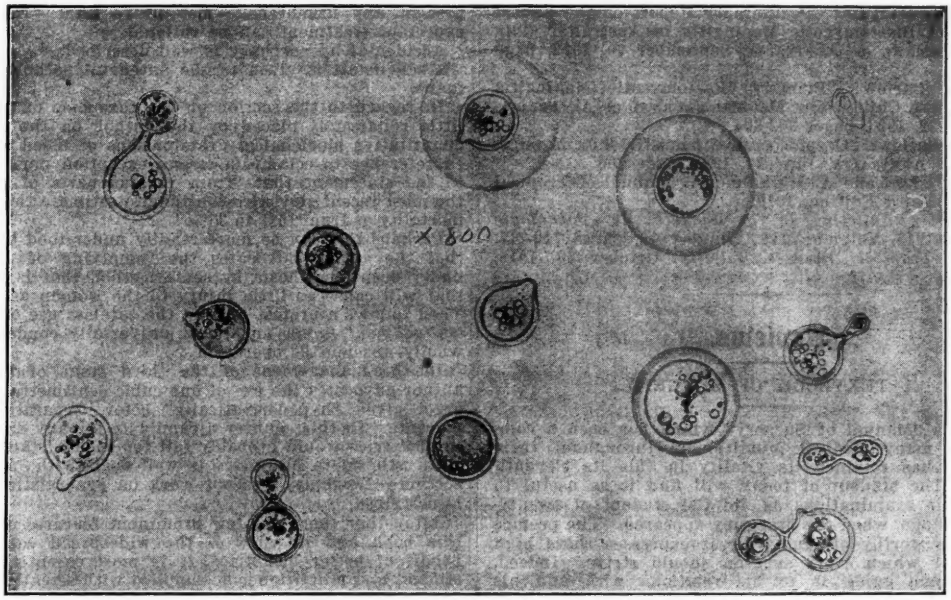
Cultures.

On several occasions cultures were made from the discharge from the wound. These were seeded on various media, but no growth of yeast-like or mould-like organisms was detected. It is to be regretted that at the time insufficient attention was paid to attempting to cultivate the organism, as the few cultivations made were quite inadequate to decide that no growth could be obtained.

Animal Inoculations.

On November 29, 1915, two guinea pigs, two rabbits and a dog were injected with fluid containing numerous parasitic bodies and were also drenched with the same.

On December 17 the inoculations and drenchings were repeated on two further rabbits, two guinea pigs and two white rats. Of these various animals none showed



Camera lucida drawings to scale, showing cysts with thin and thick walls, some showing the knob-like projection, others the development of this into buds and daughter cells. In one case a daughter cell is attached but separated from the parent by a membrane, whilst a small knob appears laterally. Two cysts are seen which have been treated with weak acid so as to show the ample mucoid envelope.

any sign of resulting disease. One white rat died on April 17, 1916, and with the exception of the presence of cestodes was found to be quite normal. No parasitic bodies were detected on it. A guinea pig which died on June 1, 1916, was also apparently quite well. About a year afterwards one guinea pig, two rabbits and a dog were still alive and apparently healthy, the other animals having died during this period without showing any pathogenic lesions.

The Nature of the Organism.

Only one form of parasitic body—the yeast-like type—has been met with. These bodies lie loose in the affected tissue. No myeloid threads could be detected of which the yeast-like bodies might be the conidia, and no asci were seen. Considering the abundance of the parasites in the tissues it seems clear that some rapid method of multiplication must exist. The only form in which this seems likely to have occurred is by the process of budding. The frequency of the knob-like projections may be considered as indicating the rate at which the cells were multiplying by budding. The knob-like projections were therefore not integral features of the cells but a phase dependent on multiplication.

When first met with the identity of this organism puzzled us very much. The other Australian cases of blastomycosis had not yet occurred to help us in the identification. Though the organism presented a yeast-like appearance with budding, we were not certain that we could exclude the possibility of its being a protozoon. We had in mind *Rhinosporidium seebri*, Wernicke (*R. Kinealyi*, Minchin and Fantham), an organism capable of giving rise to a myxomatous reaction in the nose. It was such a possibility that suggested treatment with emetine and "Salvarsan." Now with fuller knowledge there is no doubt of the organism's affinities with the yeasts. Our cultures were not successful, so that we do not know whether the organism is capable of giving rise to hyphæ or not. We have been unable to detect the presence of ascospores in asci, but this does not mean that they do not occur.

Dr. Badham would seem to suggest that the various recorded Australian cases of blastomycosis were probably due to *Sacharomyces tumefaciens* (Curtis)—an organism which produces asci.

Castellani and Chalmers[6] (page 1073) refer to *Cryptococcus dermatitidis* Gilchrist and Stokes, of which *Cryptococcus gilchristi* Vuillemin is apparently a synonym. They state that this organism was first found in a case of chronic ulcerative dermatitis and later in a case which had been diagnosed as a tuberculide of the skin. They go on to say that *Cryptococcus gilchristi* in the affected tissues has the appearance of a typical yeast—that is, large, globular cells 10 to 16 μ in diameter, reproducing by budding. They give a figure, after Gilchrist, of this organism. This description and figure fit our organism very closely though the pathological lesions produced are different. A somewhat similar organism seems to be *Coccidioides immitis* Rix and Gilchrist, to which they also refer (p. 772). This temporary genus seems to differ from *Cryptococcus* in the presence of numerous spores within the rounded bodies (asci). These bodies are of various sizes from 3 μ to 80 μ in diameter with well-defined thick membranes. They may produce lesions resembling tuberculides or gummata. A case reported by Carini, in which there was a peritoneal infection by *Coccidioides immitis*, somewhat resembles the present one. There was a swelling the size of a goose's egg in the right iliac fossa. On laparotomy the ascending colon was found fixed to the pelvis by a tumour which had invaded the retroperitoneal and lymphatic glands. A portion of one of these glands was removed and was found to contain numerous giant cells in the interior of which were round bodies 5 μ to 25 μ in diameter with a double contour. Many were multiplying by sporulation.

Obviously the information we possess about this tumour-producing yeast-like organism is insufficient to enable us to identify it specifically.

The drawings of the different appearances presented by the parasites were made from the fresh material by the artist at that time attached to the Government Printer's Department.

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Reviews.

A TEXTBOOK OF SURGERY.

CARLESS'S "Manual of Surgery" which has been a companion of many medical practitioners throughout their adult life, has retained its vitality in this its eleventh edition.[1] The student of today will find it as useful to him for his examinations as did the student of twenty-eight years ago, when the first copy appeared. The preface in itself is worthy of study, for it expresses those high ideals after which every surgeon should strive. Indeed, without some guide as to his relations with and his responsibilities to the public, the profoundest knowledge of disease and technique is rendered barren. The book has been brought up to date and as of old it is difficult to find a subject connected with surgery which is not mentioned somewhere. The index is most accurate and adds greatly to the practical value of the letterpress. The only omission noticed is that the Hamilton Russell method of treating fractured femora is not mentioned. The many coloured plates bring a realistic touch to the written word and have been delightfully executed by Mr. Sewell.

It is a pity perhaps that the radiographic reproductions have not been incorporated in the book in relation to their subject.

This edition ensures its popularity with at least another generation of students.

A TEXTBOOK OF OBSTETRICS.

"EDGAR'S Practice of Obstetrics" has been revised by Norris W. Vaux and appears as the sixth edition.[2]

The original arrangement and classification have been followed. Great stress has been laid on and comparatively much space devoted to the medico-legal aspects of obstetrics. Such is not usually the case in most similar works—for instance, in the first section one and a half pages are given to the subject of rape. The importance of a knowledge of embryology is realized in a concisely written and clearly illustrated section.

Among the diagnostic signs of pregnancy X ray evidence is not mentioned, although it is referred to in the section dealing with ectopic pregnancy. The value of X rays in diagnosis of fœtal death is also omitted. The description of examination by abdominal palpation is very well done and admirably illustrated. Emphasis is very properly laid on the extreme importance of this step.

The author admits of numerous conditions which constitute exceptions to the immediate emptying of the uterus in cases of *placenta prævia*. A diagnosis of *placenta prævia* demands instant treatment if it is admitted that the first or any hæmorrhage may prove fatal. No form of expectant treatment can be rational.

Accidental hæmorrhage is well described.

Much detail is given to the antenatal pathology of the fœtus.

In regard to the section on the toxæmias of pregnancy, little reliance is placed by the author on the results of quantitative biochemical examinations of blood and urine. In reference to eclampsia strong exception must be taken to the statement that "from various parts of the world the most recent statistics continue to estimate the maternal mortality at from 15% to 35%."

Perhaps this can be more readily understood by the fact that the author advocates the "emptying of the uterus under deep anæsthesia by some method that is rapid and that will cause as little injury to the woman as possible." Then follows a protest against the careless use of the term *accouchment forcé*—an almost universally condemned and wholly unscientific operation.

In the management of the third stage of labour the author advocates the use of one cubic centimetre of aseptic ergot given "hypodermatically" before separation of the placenta. In this country a candidate for any examination in obstetrics would probably fail for such a statement.

Anæsthesia in obstetrics is well dealt with in a special section—Gwathmey's recent work on synergistic analgesia is described.

Altogether there are few prominent features of value in this book and in view of the widespread campaign on behalf of better obstetrics, it is most essential that the student and practitioner be supplied with scientific methods and accurate data.

The arrangement of the book somewhat resembles an encyclopædia. The print is good, yet there are many errors in spelling and the phrasing and wording are not all to be desired—for example, "patulousity" in reference to the state of the Fallopian tubes (page ten). The book contains too many illustrations, there being 684 illustrations in 743 pages. Many of them are excellent, but some are very poor, others quite unnecessary, such as Figure 287, "little finger wrapped with gauze for removing mucus from the child's mouth." At the end is a large compilation of references from the literature and an index.

Although containing many items of practical and scientific interest, the work cannot be recommended for general use in Australia among students and practitioners, but may prove of value as a book of reference.

THE FEEDING OF INFANTS AND CHILDREN.

IN the preface to their book, "Modern Methods of Feeding in Infancy and Childhood,"[1] the authors, Dr. Donald Paterson and Dr. J. Forest Smith, state that this little monograph is concerned with the essentials of infant feeding by modern methods and they may be said to have justified their title.

The book is well arranged, each chapter dealing with some special aspect of the matter. Thus the composition of breast and cow's milk is given in the first chapter, as well as that of dried and patent foods. Breast feeding with the numerous details necessary for its successful management is the subject of the second, while the third chapter deals with the difficulties that may be met. Artificial feeding of infants is next discussed, for example, humanized milk, percentage feeding and the use of starch and in this connexion the various controversial points are clearly set out. The feeding of older children, the disorders of infancy and prematurity form the contents of the final chapters.

The book is clearly written, the type is good, the text gives a fair statement of the case and covers the ground set out in the title. In fact the essentials have been well presented in a readable form and the book should be of great value to the general practitioner and student.

[1] "Manual of Surgery for Students and Practitioners," by Albert Carless, C.B.E., M.B., M.S. (London), F.R.C.S.; assisted by Cecil P. G. Wakeley, F.R.C.S., Eleventh Edition; 1924. London: Baillière, Tindall and Cox. Demy 8vo., pp. xii. + 1600, with illustrations and X ray supplement. Price: 30s. net.

[2] "Edgar's Practice of Obstetrics," by J. Clifton Edgar, revised by Norris W. Vaux; 1926. Philadelphia: P. Blakiston's Son and Company. Crown 4to., pp. 795, with 684 illustrations, including five coloured plates and 38 figures printed in colours.

[1] "Modern Methods of Feeding in Infancy and Childhood," by Donald Paterson, B.A., M.B. (Edinburgh), M.R.C.P. (London), and J. Forest Smith, M.R.C.P. (London); Modern Medical Monographs, Edited by Hugh Maclean, M.D., D.Sc.; 1926. London: Constable and Company, Limited. Sydney: Angus and Robertson, Limited. Demy 8vo., pp. 106. Price: 9s. net.

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Mental Deficiency.

THE term mental deficiency implies the existence of a standard of mental normality. In the case of the idiot and the imbecile it is easy to recognize deficient mentality and in dealing with the high grade moron there is not much difficulty. The individual on the border line, however, presents a more complex problem. The question of his normality or otherwise is generally determined by his response to various tests of his intelligence. In other words his mental age is estimated. The standard of normality has been determined by the measurement of the intelligence of a large number of individuals and by finding the mean. At the same time it must be remembered that the results of all subjective tests are fallible and variable. Hence no one mental test can be regarded as giving an accurate estimate of the mental state, though if a series of different tests is carried out and conduct is taken into consideration this may be achieved.

In connexion with mental deficiency certain facts need to be emphasized. In the first place mental deficiency is relatively common. In Tasmania a State school population of 23,000 children has been surveyed by the State Psychological Clinic and the percentage of feeble-minded children has been ascertained to be about 0·5. On these figures it has been estimated that the number of defectives of all grades in the population is in the vicinity of 3‰. If "all grades" are intended to include moral as well as intellectual defect, it is probable that the number is considerably higher than this. The second fact is that arrest of the development of the brain is frequently accompanied by disturbance of the moral sense. The inevitable result is an increase in crime and prostitution. In a recent estimation of the intelligence quotients of one hundred and seventeen prisoners in the Hobart Gaol it was found that nine were imbeciles, twenty-five were feeble-minded, thirty-six were on the border line and twenty-one were marked as "inferior averages." Figures in regard to the mental age of prostitutes are also known to stand at a low level. The third fact requiring emphasis in connexion with mental deficiency is that if mental defectives are properly controlled, they can be made quite happy, can be prevented from doing harm to themselves and to others and can often be taught to do useful work. The histories of several of the patients mentioned by Dr. John Bostock in his articles of two weeks ago and of this issue are examples of this. At the present time mentally defective children are often placed under control at an early age and, when they reach the stage of adolescence, are cast out into the world to fend for themselves. This is the time when the sexual instincts are awakened, the time when control is more than ever necessary. It is not surprising that in these circumstances crimes of a sexual or violent nature are reported from time to time. The wonder is that they are not more frequent.

In view of these facts the part played by medical practitioners in the discovery and control of mental defectives needs to be considered. It is doubtful whether sufficient teaching is given in the medical curriculum to the question of mental defect. Dr. Bostock has shown that in New South Wales at any rate a large amount of excellent clinical material is not utilized. This is probably due to the fact that the institution with which he is connected, is situated at a considerable distance from the medical school. This might with advantage be remedied. It is recognized that mental defectives described by Dr. Bostock are of the more obvious, the more advanced type. But defectives of this type need to be studied and their condition needs to be thoroughly understood, before those on the border line can be recognized. The modern psychologist devotes a great deal of energy to the discovery and grading of mental defectives. We have always held that the problem of the mental defective belongs to the sphere of the medical psychologist. The differentiation of normal and abnormal mental processes belongs exclusively to the medical practitioner. None but medical practitioners are entrusted with the care of insane persons. When abnormality of the mental process is dependent on arrest of brain

development, the same knowledge of physiology and of psychology is required as in psychiatry. The problem of the mental defective is a medical one. Members of the medical profession with one or two notable exceptions have manifested a strange apathy to this subject. They have been content to allow the layman to step in and assume a rôle for which he is only partially equipped. While medical practitioners continue to adopt this attitude of aloofness, they cannot blame the lay psychologist for attempting to do their work for them. It is not suggested that a lay psychologist, working in conjunction with medical practitioners, does not achieve useful results. Indeed in several States in Australia psychologists are attached to the staff of school medical officers and work of a high order is carried out and in Tasmania the Director of the Psychological Clinical has in many respects blazed the track in Australia in so far as criminological investigations are concerned, but he works in conjunction with a medical practitioner. In the present state of affairs this arrangement must be accepted. Medical practitioners, however, must realize that this work is waiting to be done by them. They must accept the challenge and shoulder the responsibility. When this is done and not until then will there be some hope of having the control of mental defectives put on a sound basis. This must be the same as that adopted in regard to insanity, namely organized supervision from infancy to old age. In many cases institutional care will be necessary, in others it may suffice if the environment and general living conditions are made the subject of investigation. Finally it is quite possible that with many defectives the best results would be obtained if control colonies were established for them.

Current Comment.

GREAT BRITAIN AND DECADENCE.

At the civic reception to the Bishop of London in Sydney a few days ago Mr. A. C. Willis, M.L.C., "dropped a brick amongst his words of welcome" when he referred to evidences of decay in Britain. The Bishop took up the cudgels on behalf of the Old Country on the following day when addressing the New South Wales Institute of Journalists. He declaimed that Great Britain stands higher today than perhaps it ever stood before in prestige and in the opinion of the world. He referred to the prominent, nay the leading part, played by its representatives in the deliberations of the League of Nations and to the fact that the British are held in high esteem because they pay their debts to other nations and say nothing about it.

In these circumstances it is interesting to read the views of the "gloomy" Dean of Saint Paul's, the Very Reverend W. R. Inge on racial degeneration.[1] Dean Inge delivered the Lloyd Roberts Memorial Lecture on this subject before the Royal College of Physicians of London on November 19, 1926. According to him the negative side of eugenics is more important than the positive. It is necessary to consider whether we can counteract the dysgenic effects of a highly artificial civilization. Natural selection in a humane and highly civilized country like Great Britain has almost ceased to operate. If some natural substitute is not found for it, Nature will inflict a punishment for interference with her methods of social hygiene. Buffon has said that "to understand what has happened and even what will happen it is only necessary to examine what is happening." Biological progress means increasing complexity of structure and function, increasing specialization and cooperation of parts and what we call human progress, is no more than this. Specialization always means limitation in some direction. Fortunately there are physiological limits to specialization. Man has been a distinct species for probably more than a million years, but anything like civilization is a matter of the last ten thousand years or so. This is a very short time for him to adapt himself to revolutionary changes in his habits. It is not, therefore, to be wondered at that what Metchnikoff calls maladaptations or disharmonies, bodily as well as mental, exist to plague us in our health and conduct.

Turning to the question of human intelligence Dean Inge regards it as doubtful whether there has been any advancement in the last five thousand years. There can be no doubt, he adds, that the Greek was our superior. Civilization is mainly the result of accumulated knowledge and experience. Each generation stands on the shoulders of the last and has the chance of climbing higher from that point. Most of our acquisitions are in the custody of a very few persons. Some of them are trade secrets, others can be mastered only by many years of application. This explains how civilizations occasionally die; it is also an argument for a widely diffused education.

Those qualities which were once essential to progress, have no longer the same survival value under civilizations of the modern type. Holmes, of California, an American eugenist, has summed up the differences between barbarism and civiliaztion. Among primitive races natural selection operates actively. Nomads are obliged to leave diseased and feeble members of the tribe behind on their long marches. Superstitious fear causes deformed children to be destroyed. Sexual selection fre-

[1] *The Lancet*, November 27, 1926.

quently works for race improvement. Thus the African chief who monopolizes half the women in his tribe, and who is the father of his people in the most literal sense, is usually a man of gigantic stature and strength and of great vigour of character. Savage war tends to an increase of the best stock, since the better fighter kills the worse. Dean Inge regards this as somewhat doubtful: "he who fights and runs away, may live to fight another day." Among civilized races natural selection is reduced in some cases and probably increased in others. In the upper and middle classes marriage is not universal and, though many of the best men and women unfortunately die childless, there is a certain selection against men who cannot "make good" as salary earners and against women who are not likely to make satisfactory mothers. Meanwhile the State and private charity keep alive multitudes who by their misfortune or fault are lifelong parasites on the community, and who in many cases suffer from heritable defects. This dysgenic selection affects a much larger number than the slightly eugenic selection among the well-to-do. Civilized war eliminates the best and such evidence as is available, goes to show that considerable injury has been done to European racial stocks by the Great War. In place of the greater fecundity of the barbarian chiefs the socially successful in civilized countries do not keep up their numbers. Against this it may be said that "Plutus is blind and does not always enrich the best" and that the offspring of the *nouveau riche* are not always better specimens of humanity than their poorer neighbours. Dean Inge deduced that there is no doubt at all that industrial civilization under a democracy skims off the cream in each generation and throws much of it away.

The Dean then discusses the group as opposed to the individual and he points out that the bees and the ants have proceeded by extreme differentiation of function. He asks whether it is desirable for humanity that the group should supersede the individual. He refers to the teaching of Herbert Spencer and Haeckel in this regard. According to these writers the existence of a privileged minority, existing as a result of natural selection, implies a starving and miserable majority. Such sentiments in Dean Inge's opinion represent a path which a nation might take to its own undoing. There are several fatal objections to it. Unlimited competition exhausts the competitors physically and mentally and eventually sterilizes them. In all higher human activities competition is not the chief motive force and in a nation organized solely for big business these higher activities languish. The millionaire is not the supreme product of human progress. Moreover, as a result of our industrial *régime* there has come about a correlation between failure and fecundity which is an odd comment on Herbert Spencer's "beneficent law of the survival of the fittest." A society with well marked castes may be successful partly because, while encouraging good conditions of skill and requiring a considerable amount of specialization, it mitigates competition, but not if it includes an ignorant and wretched proletariat. No scheme of social hygiene can be satisfactory that does not include the whole population. The plan of development to the utmost of a small selected class has been tried several times, but it is not proved that equally good results might not have been obtained by other methods involving less injustice.

Under the heading of social science and environment Dean Inge refers to what can be done by external means such as education, sanitation and increased opportunities for leading a healthy life. He refers to what has been done in regard to the conquest of disease in certain parts of the world and adds that when all has been said in favour of concentrating attention to the environment, the best authorities are unanimous that Nature is far more important than nurture. After considerable reference to hereditary ability the Dean discusses the injury which is being done to the national stock by the unchecked propagation of inherently bad stocks. "A combination of socialism in distribution with *laissez faire* in procreation is a policy only fit for Bedlam."

In conclusion Dean Inge has something to say about parasitism, not only of persons or classes on the community, but of human beings parasitic on machines that they have made for their own use. "We may some day have a generation who can neither walk nor write; they will rely on the cycle or car for the first and on the typewriter for the second. 'You press the button; we do the rest.' Nature will say, 'Very well, I will leave you just enough intelligence to press the button.'" He thinks that society may become like a majestic sunfish—its scales covered with lice, its intestines a tangled mass of tapeworms, its eyes pierced by trematodes, no organ of its body free from swarming masses of parasites. It may not be easy to recall the parasites to healthy social habits.

Consideration of Dean Inge's views will show that they are not necessarily incompatible with those of the Bishop of London. The latter dealt with Great Britain in regard to her position among the other nations. Dean Inge on the other hand has opened up a topic which concerns all the civilized nations of the world. All through the ages nations have arisen and nations have fallen, culture has come and culture has gone, glory has waxed and glory has waned. It is perhaps a good corrective to remember the words of Anatole France:

> In all epochs there have been found candid and generous spirits who lament the universal decay of men and things and foretell the end of the world. Homer, anticipating M. Henri Cochin, has said: "The men of the past were better than the men of the present." Others, through a contrary illusion, proclaim the hour in which they were born to be fortunate. They honestly think that the past was dark and wretched and that the future will be splendid because it issues from themselves. It occurs to nobody to think that before our time human affairs were a mixture of good and bad and that after us the world will pursue its way and remain mediocre, though this view is, however, the most probable one.

While it is certain that life has never been on the one hand so strenuous and on the other so artificial as it is today, there is room for considerable

difference of opinion in regard to some of Dean Inge's conclusions. In regard to parasitism and machinery it must be remembered that the advent of machinery has resulted in the development of a new type of mind. The industrialist, working a machine, must understand its mechanism, he must be alert and able to see at a glance when anything goes wrong. More than this, machines have to be made and improvements are continually being added. The latter very often result from intelligent use of machines. It would be interesting to know what grounds Dean Inge has for the view that unlimited competition sterilizes the competitors. There are many other points which might be discussed in Dean Inge's paper, but space unfortunately will not permit at the present juncture.

It is one thing to put a finger on weak spots in a *régime* or to discover defects in administration or, as Dean Inge has done, to make a survey of the position of nations. It is quite another matter to suggest remedies. Although he may not be wholly correct in his conclusion, Dean Inge is seized with the seriousness of the position. He thinks that it is not yet too late to stop the mischief which has not yet had time to go very far. He is so much in earnest that he delivers himself of a beautiful mixture of metaphors. "We must hope that social antitoxins will somehow be generated and that we shall not steer the ship upon the rocks with our eyes open." He deplores the fact that he has not got more practical suggestions to offer. He thinks that all that can be done at the present time is to persuade the people of Britain what the pressing problems really are. The Dean was addresssing a medical audience (this was not the first occasion on which he has been asked to address medical practitioners) and he appealed for authoritative utterances from the great medical societies. He thinks that doctors do not realize how glad the public would be to listen to them. "The modern man may deny that he has a soul and forget that he has a mind, but he is acutely conscious that he has a body." The medical practitioner can touch but one side of the question, his strivings in preventive medicine and his adoption of what may be called a eugenic outlook, must react for good on the whole community. The medical profession must make its voice heard on questions of national well-being. It is probable that a considered statement on such a question as Malthusian doctrines would do good (Dean Inge is not afraid to adopt a statesmanlike attitude on this question). There is, moreover, the fact that medical practitioners more frequently than not take no active part in the public life of the nation. If they did so, they might make what Dean Inge calls "our precious politicians" interest themselves in matters of moment rather than in matters of votes.

SYPHILITIC ARTHRITIS.

Arthritic lesions are known to occur in both congenital and acquired syphilis. The arthritis of congenital syphilis is frequently not recognized and the lesion is regarded as tuberculous. The arthritis sometimes associated with secondary syphilis is not so likely to escape recognition and gummatous lesions of the synovia should be detected without much trouble. At the same time it is doubtful whether sufficient attention is paid to this aspect of syphilis and to the fact that syphilis may be the underlying factor in apparently non-syphilitic joint conditions. In 1925 Weil and Bourgeois drew attention to two forms of arthritis which according to them have not been recognized as syphilitic. One form is a unilateral hydrarthrosis. Sometimes the hydrarthrosis may be the first sign, but this may be preceded by arthralgia extending over a period of years. The second form is an arthralgia occurring in late syphilis. This arthralgia is of the fleeting type and occurs successively in different joints. It is relieved by antisyphilitic remedies. The diagnosis of syphilitic joint lesions has been put on a more satisfactory basis by the discovery of Fouquet that a response to the Wassermann test may frequently be obtained with the fluid from a joint when the blood serum yields no reaction.

Dr. Alan H. Todd has recently discussed the subject of syphilitic artrhritis.[1] He has tried to show that this disease is not so rare as it is commonly thought to be and that syphilis should be borne in mind when the diagnosis of a case of arthritis is under consideration. At the outset he refers to the necessity of drawing a definite distinction between syphilitic arthritis and arthritis occurring in a syphilitic subject. Syphilitic arthritis is arthritis due to syphilis. Such an arthritis is curable by antisyphilitic treatment, if the condition is diagnosed in an early stage. This response to treatment is an important criterion in diagnosis in Dr. Todd's opinion more important than response to the Wassermann test. It must be remembered, however, that response to the Wassermann test is an absolute indication of the presence of syphilis. A response to the test may be obtained when antisyphilitic treatment has no effect at all.

Dr. Todd discusses the subject under several headings and in the course of his article puts forward several "clinical aphorisms" some of which are useful. In congenital syphilis several forms of arthritis may be manifest. The first is Parrot's syphilitic osteochondritis. The lesion is a "juxta-epiphyseal inflammation" characterized by a gelatiniform change in the cartilage and bone. A greenish-yellow fluid forms and this fluid yields a response to the Wassermann test. Separation of the epiphysis may take place. Clutton's joints constitute another manifestation of congenital syphilis. This condition consists in a bilateral hydrarthrosis and here Dr. Todd introduces his first aphorism: "Bilateral, painless hydrops of the knees in children is due to syphilis." Lastly arthritis in syphilitic children may be exactly analogous to that seen in the tertiary syphilis of adults.

Dr. Todd's opening statement in regard to acquired syphilis that arthritis is encountered in various forms and at every stage of the disease

[1] *The British Journal of Surgery*, October, 1926.

surely needs modification. He cannot intend this to apply to the primary stage. He points out that syphilitic arthritis is more severe in the later stages of the disease. It affects joint structures more deeply and is more resistant to treatment. It is here too that he does well to emphasize the importance of the early and vigorous treatment. Undiagnosed or inadequately treated syphilis leaves a joint which is a constant source of disability, unreliability and even danger. Dr. Todd discusses arthralgia and points out that it is often regarded as rheumatic. He describes the symptoms and their bearing on the diagnosis and comes to the conclusion that syphilitic arthralgia probably consists in an infiltration of the muscles, fasciæ and so forth. This brings him to his second aphorism: "Never diagnose rheumatism in any form until syphilis has been excluded as a possibility in the diagnosis." Hydrarthrosis occurs in secondary syphilis in two forms, an early transient form and a later and more persistent form. The response to treatment is good. The plastic form of secondary arthritis is rarer than hydrarthrosis. Thickening of the synovial membrane and of the perisynovial tissues occurs and the swelling has the shape of the joint cavity. The response to treatment is slow, but eventual recovery as a rule takes place.

Turning to tertiary syphilis, Dr. Todd discusses gummatous arthritis under two headings, a synovial form and an osseous form. The synovial form is strictly speaking a perisynovitis. It may simulate tuberculosis very closely and this brings Dr. Todd to his third aphorism: "Never diagnose tuberculosis or any other form of arthritis until you have excluded syphilis." In children the osseous form is primarily an epiphysitis. In adults the condition often resembles an ordinary osteoarthritis and in most cases osteoarthritic changes eventually appear. If treatment be delayed or inadequate, gross osteoarthritic changes of the proliferative osteophytic type may take place or else ankylosis may occur. In this connexion Dr. Todd enunciates his fourth aphorism: "Monarticular arthritis of a deforming type at any age, with or without pyrexia, may be syphilitic."

The last forms of syphilitic arthritis which Dr. Todd discusses in detail, are a pseudo-rheumatic form and a pseudo-rheumatoid form. He shows that the former may simulate acute rheumatism and announces his fifth aphorism: "Acute rheumatism which does not react to salicylates, is almost certainly syphilis."

Dr. Todd's communication is useful in that he emphasizes the importance of care in diagnosis of arthritic conditions. Syphilis is no longer a hidden mystery, its causative organism is known and appropriate means of diagnosis and treatment are available. At the same time its spread is so insidious and its manifestations are of so protean a nature that its recognition and treatment in its more obscure forms will remain a matter of difficulty unless continual watchfulness is exercised. The effect of treatment and the result of the Wassermann test in the synovial fluid as well as in the blood will be of the greatest assistance. Dr. Todd has emphasized the latter in his sixth and final aphorism, but his diction is so slovenly that his words lose much of their point. He writes: "The Wassermann reaction should be tested as an absolute routine in every case of arthritis of every degree of severity." The Wassermann reaction does not need testing, its clinical value and its limitations are well known. He also confuses the Wassermann reaction and the Wassermann test in his final conclusions. It is a pity that faulty language has been allowed to mar what is otherwise a piece of useful and instructive work.

THE TREATMENT OF MYELOMATA.

THE treatment of myeloma causes much anxiety to the surgeon because it is not an easy matter to distinguish a benign myeloma from a myeloid sarcoma. The occurrence of a tumour of the latter variety in such a situation as the lower end of the femur or the upper end of the tibia is an indication for immediate amputation, but when the diagnosis is in doubt and even when the balance of evidence is in favour of a benign growth, the surgeon who puts safety first, has a difficult problem to face. In recent years it has been shown that local removal of benign myelomata is safe and satisfactory. Removal of the tumour and curettage of the cavity have been followed by the insertion of inert substances, bone grafts and so on in the hope that they will act as a "scaffolding" for the growth of new bone. In 1922 Mr. Alan Todd reported what was a new method of operating on these myelomata. He curetted the growth from the condyle of the femur and filled the cavity with bone chips taken from the ilium. The wound healed by primary intention and the grafts took. A year later the limb had to be amputated on account of local recurrence of the growth which was then regarded as "mildly malignant" sarcoma. In 1926 Mr. J. B. Hance described a case of myeloma of the ulna which he treated in a similar fashion.[1] Treatment was successful and Mr. Hance concluded that the method was worthy of more extended trial and that cancellous grafts, used as malleable bone-forming media in association with graduated movements and accurate splinting, tended to earlier restoration of function and symmetry than grafts of compact bone. Mr. R. A. Rowlands has reopened the question and has reported three cases in which he curetted the cavity and allowed it to fill with blood.[2] In each instance recovery was uninterrupted and rapid. One patient with a tumour in the head of the tibia was able to walk after wearing a calliper for four months. Mr. Rowlands refers to the work of both Mr. Hance and Mr. Todd and claims that grafting is superfluous, but that it may possibly produce more rapid ossification. Unfortunately he does not contribute anything to the question of diagnosis. He points out that myeloma was formerly mistaken for myeloid sarcoma, but that myeloma is recognized as non-malignant. The case described by Mr. Todd shows that it is quite easy to make a mistake.

[1] *Guy's Hospital Reports*, January, 1926.
[2] *The British Journal of Surgery*, October, 1926.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

The Functions of the Spleen.

BECAUSE of its size, its architecture, the largeness of its blood supply the spleen has always seemed to physiologists to be an organ whose functions should be considerable. But what are these functions? L. Binet (*La Presse Médicale*, November, 1926) attempts to answer this in part. Barcroft and other workers have during the past few years demonstrated that the spleen is an organ which regulates the number of red corpuscles in the circulating blood or in other words that it acts as a reservoir of red corpuscles. Barcroft has shown that the spleen is much more voluminous during life than after death, that muscular exercise is followed by contraction of the spleen and that hæmorrhage and carbon monoxide poisoning bring about a similar reaction. Binet has studied particularly the effect of acute asphyxia on the spleen. An enumeration of the red corpuscles in the arterial blood, in the capillary blood, in the blood of the heart and a determination of the volume occupied by the corpuscles in one hundred cubic millimetres of blood have shown that acute asphyxia, brought about by closing the trachea is accompanied by a very considerable increase in the corpuscles. In the dog five minutes of acute asphyxia may increase the number of corpuscles by 1,500,000 per cubic millimetre. This increase was found in all cases in which there was complete obliteration of the trachea, and was general throughout the body. If the period of asphyxia is followed by artificial respiration, the increase slowly disappears, but it takes an hour or more to reach the preasphyxial number of corpuscles. If the spleen be removed before the asphyxia, there is no increase in the number of red corpuscles. The contraction of the spleen and the mobilization of red corpuscles seem to be due to a double mechanism, nervous and adrenal. Injections of adrenalin bring about a contraction of the spleen and an increase in the red corpuscles. Contraction of the spleen in asphyxia is, however, seen when the suprarenals have been removed, while cutting the nerves to the spleen prevents this effect. In normal conditions of rest with calm respiration, there exists in the circulating blood what may be called a basal number of corpusles (*une globulie de base*). Under the influence of exercise, of hæmorrhage, of carbon monoxide poisoning and of respiratory troubles there is added to this a mobilization increase due to splenic contraction.

Delayed Clotting of Hæmophilic Blood.

W. H. HOWELL AND E. B. CEKADA (*American Journal of Physiology*, November, 1926) have studied three cases of hæmophilia with special reference to the prothrombin of the blood and the characteristics of the blood platelets. The concentration of calcium in the specimens of blood fell within the normal range, averaging 10·3 milligrammes per hundred cubic centimetres of blood. There is no evidence to show that delayed clotting is due to a deficiency of calcium. Prothrombins were prepared by several different methods from normal and hæmophilic blood and no difference was found between them qualitatively or quantitatively. There is no deficiency of prothrombin in the blood in hæmophilia. The blood platelets were found to be more resistant in hæmophilic blood than in normal blood, as shown by counting and by blood smears in the shed blood. Their slow disintegration accounts for the delayed clotting.

Adrenalin Vasodilatation.

IT has long been known that small doses of adrenalin may depress the blood pressure of the anæsthetized cat and various explanations have been given for this phenomenon. A. D. Macdonald and W. Schlapp (*Journal of Physiology*, December, 1926) point out that this fall of pressure is very specially related to the anæsthesia; it is pronounced under ether and urethane, less pronounced under chloralose, if no ether has been given just before. In the high pressure decerebrate cat from which all traces of ether have been thoroughly ventilated, and after the circulation has had time to recover from the effects of the anæsthetic, no such depressor response can be evoked. Depressor doses may now produce prolonged and considerable rises. On either being supplied to such an animal, the depressor response quickly returns.

Emptying of the Gall Bladder.

THE question as to whether the gall bladder ever empties its contents was settled by Boyden in 1925 in his studies on cats wherein he showed that the gall bladder was always empty after an interval varying from one and three quarters to four hours following a given fat meal. It has been considered that the gall bladder is passive and that the active factors in emptying it are the secretory pressure of the liver, the regulatory action of the *sphincter papillæ* and the intra-abdominal pressure. Some preliminary experiments by G. M. Higgins and F. C. Mann (*American Journal of Physiology*, October, 1926) led them to suspect that the gall bladder itself plays some major part in the emptying process. They have reinvestigated the whole process using different animals, including fishes, amphibia, birds and mammals. In general the results show that the gall bladder invariably empties following a diet rich in fat. In fishes there can be no great fluctuations in intraabdominal pressure, yet the gall bladder empties after a fat diet. Studies of the exposed bladder of a guinea pig under "Novocain" anæsthesia showed that it empties only in response to some fat diet and that it empties through the cystic duct. Neither gravity nor intraabdominal pressure may in themselves function in emptying the vesicle. The opening of the duct into the duodenum has been frequently observed to be patent, even though the gall bladder was well distended with bile. Observations on dogs were similar. The authors conclude from their observations that: (i.) the gall bladder empties through the cystic duct; (ii.) the gall bladder empties by contraction of its own intrinsic musculature; (iii.) secretory pressure of the liver is of little significance in emptying the vesicle; (iv.) intraabdominal pressure is not a major factor in emptying the vesicle; (v.) the sphincter of the common duct is not a factor in emptying the vesicle, except that its relaxation permits the bile to pass into the duodenum under pressure incited by the contraction of the gall bladder.

Respiratory Exchange During Exercise.

A. E. CLARK-KENNEDY AND T. OWEN (*Journal of Physiology*, December. 1926) have studied the effect of high and low oxygen pressure on the respiratory exchange during exercise. The respiration has been investigated during work of the same duration, but increasing oxygen requirement. With increasing rate of work the respiratory quotient, pulmonary ventilation, percentage of oxygen in the expired air and percentage of oxygen requirement incurred as debt rise; the percentage of oxygen taken out of the inspired air and the percentage of carbon dioxide in the expired air fall. Progressively more ventilation becomes necessary to effect the same oxygen intake and carbon dioxide output. The respiration has also been compared during work of the same duration and oxygen requirement with the subject breathing 26%, 21% (air) and 16% oxygen. When a subject is running as fast as possible and is breathing a high oxygen mixture, the oxygen intake and debt are both greater (more work is possible), and when he is breathing a low oxygen mixture both intake and debt are less (less work is possible) than when air is breathed. Rise of pH is probably the important physical basis of the psychical distress which limits voluntary effort. The authors conclude that voluntary effort is limited by failure of the functional capacity of the cardio-respiratory system as a whole, not by premature failure of any one member of the team, for example the heart; in extreme muscular exertion integration of function is maintained. When, however, the functional capacity of the heart is reduced by disease, on attempted effort integration of function can be maintained only by corresponding reduction in the functional capacity of breathing. Thus in compensated heart disease the vital capacity of the lungs (themselves not diseased) is reduced. When, however, the limits of this protective reaction are reached, disintegration of cardio-respiratory

function supervenes and blood accumulates in the veins with symptoms of congestive cardiac failure. From the standpoint of physiology disease is regarded as disintegration of function. As disease progresses in one organ, integration is for a time maintained by readaptation of the functions of others, but sooner or later disintegration begins.

BIOLOGICAL CHEMISTRY.

The Kidney and a Diet Containing Excess of Protein and Cystin.

T. ADDIS, E. M. MACKAY AND L. L. MACKAY (*The Journal of Biological Chemistry*, December, 1926) have investigated the effect on the kidney of the long continued administration of diets containing an excess of protein and cystin. They point out that experimental work on this subject has left the question of kidney damage undecided and hold that further data are needed for the solution of the problem. In order that clear and unambiguous results may be obtained in experiments dealing with this question, certain prerequisites must be met. In the first place the period of observation must be extended to cover a considerable part of the total life span of the subjects under experiment. In the second place it is important that the addition of the excess element shall be the only difference between the diets of the animals experimented upon and the controls. The third and most essential condition is that the diets for control and for experiment shall both be amply adequate for growth and maintenance and as closely comparable as is possible except for the variable factor concerned in the experiment. It is impossible to add an excess of protein to the control diet without diminishing to a proportionate degree some of its other constituents and there is a danger that the concentration of one or other essential element may be so lowered that the high protein diet becomes defective. In these circumstances any effect produced might be ascribed to excess of protein, although it should really be related to the unsuspected deficiency. Throughout their experiments on rats the authors have taken special care to insure that the high protein diet contained an abundance of all necessary food factors. The control diet consisted of corn starch, casein, lard, cod liver oil, salt mixture, yeast and alfalfa. This diet contained 17·3% protein, 44·8% carbohydrate, 24·7% fat, 5·7% water, 0·8% roughage and 6·7% salts. The high protein diet consisted of casein, cod liver oil, salt mixture, yeast and alfalfa. This diet consisted of 69·5% protein, 4·4% carbohydrate, 10·7% fat, 7·5% water, 0·8% roughage and 7·1% salts. Accurate measurements of food consumption were made possible by the construction of food boxes from which only the food actually consumed by the rats could have been removed. They found that the rats which lived for one-third of their lifetime on the high protein diet, grew nearly to the same length as the controls, but had a lower body weight as a consequence of an almost complete absence of fat. There was an increase in the weight of the kidney and a decrease in the weight of the liver. No pathological changes were found in the urine or in the kidneys of the rats which lived on a high protein diet or of those which lived on a diet containing 1% cystin. In discussing their results the authors point out that those who have failed to find pathological changes in the kidney as a result of high protein diet, have been able to suggest that the lesions found by others may have been caused by factors other than the high concentration of protein in the food. In their opinion it is likely that certain of the high protein diets used by other workers have also been defective diets. They refer to the work of Newburgh, Marsh, Clarkson, Curtis and many others who have found pathological changes resulting from high protein diet and characterize them as important because they are positive. They point out that their findings are not directly opposed to those of these workers, since they did not attempt to duplicate their condition, nor are their results so general in nature that they can be regarded as final. They conclude, however, that they are compelled to reject the hypothesis that a large consumption of protein is in and by itself necessarily harmful to the kidneys.

Hydrazine and Metabolism.

HOWARD B. LEWIS AND SEIICHI IZUME (*The Journal of Biological Chemistry*, December, 1926) point out that Mann and his collaborators by the aid of an improved operative technique for hepatectomy have brought forward new evidence of the function of the liver in the regulation of blood sugar content, in the deamination of amino acids, in the formation of urea and in the destruction of uric acid. Another method is available by which these hepatic functions may be demonstrated, namely by the use of chemical substances which have an effect primarily upon the liver cells, without producing definite injury in other tissues. Such a substance is hydrazine. Rabbits which had fasted for several days, were used for experiment. Both hydrazine sulphate and glycine were dissolved in physiological salt solution and injected subcutaneously. The animals were given no food, but water was given twice a day to avoid concentration of the blood. Blood was drawn from the ear vein and occasionally from the heart. It was found that the injections were followed by fatty degeneration of the liver and by injury to the kidneys. A rise in the amino acid content of the blood occurred. The urea content of the blood was not increased when the kidneys were not affected by the hydrazine, but often manifested a considerable increase when kidney lesions were present. It was also found that in hydrazine poisoning the power of the animal organism to metabolize injected glycine, to transform glycine into glucose and urea and to synthesize glycogen from glycine was diminished. The authors in discussing their results point out that the increase in amino acid content of the blood might be considered to be due to an increased catabolism of tissue proteins, to a decreasing ability of the organism to deaminize and utilize amino acids or to a difficulty in excreting amino acids through the kidneys. They discuss these possibilities and conclude that the increase should be attributed to derangement of the function of the liver which results in the failure of normal deamination of amino acids. They also claim that these results furnish evidence that the liver is importantly concerned with deamination of amino acids and formation of urea.

Antineuritic Vitamin.

S. M. HAUGE AND C. W. CARRICK have made some observations on the differentiation between the water-soluble, growth-promoting substance and the antineuritic factor (*Journal of Biological Chemistry*, August, 1926). Both of these factors have been usually described as vitamin *B* and regarded as identical since numerous investigators have been unable to obtain any conclusive evidence of differentiation. The authors have obtained a dried brewer's yeast which brought about excellent growth in rats even when fed at low levels, but which failed to prevent polyneuritis in cockerels. In other experiments the authors have been able to prevent polyneuritis in chickens when 30% corn has formed the sole source of antineuritic substance in the diet, yet they obtained little growth in chickens on such diets. Many experiments have been performed in which corn and yeast have been fed at different levels both separately and in combination. These experiments suggest that the corn is rich in an antineuritic substance, but relatively poor in growth-promoting substance, while the yeast appears to be rich in growth-promoting substance but poor relatively in antineuritic factor.

Acidity of Blood.

M. A. BENNETT (*Journal of Biological Chemistry*, August, 1926) points out that the methods of Cullen, both colorimetric and electrometric, for the estimation of hydrogen ion concentration of plasma and serum may fail under certain conditions. The author made observation on the acidity of the blood of dogs which had been bled. The author finds that there are great differences between the results of these methods upon normal blood and upon the blood of dogs suffering from the effects of hæmorrhage. These differences may lead to as much as pH = 0·4 in the readings. Curiously enough the difference appears to be quite erratic, suggesting a variable factor not yet taken into consideration.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE RADIOLOGICAL SECTION OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION AND OF THE SURGICAL ASSOCIATION OF VICTORIA was held at the Medical Society Hall, East Melbourne, on August 26, 1926, MR. BASIL KILVINGTON in the chair.

X Ray Examination in the Diagnosis of Gastric and Duodenal Conditions.

The subject set down for discussion was "The Value of Investigation by the X Ray Method in the Diagnosis of Conditions of the Stomach and Duodenum."

DR. H. M. HEWLETT opened the discussion. His remarks are published at page 328 in the form of an original article entitled: "X Ray Examination of the Stomach."

DR. K. STUART CROSS showed a series of films demonstrating a characteristic deformation of the first part of the duodenum, the result of ulceration.

The first film shown was from a patient recently referred by Dr. Konrad Hiller and subsequently operated on by Mr. B. T. Zwar. The radiological examination disclosed a large pendulous sac originating from the greater curvature side of the duodenum close to the pylorus. The rest of the duodenal "cap" was constricted and deformed. There was considerable stasis of food in this sac. Operation had confirmed the X ray diagnosis. When the abdomen was opened the sac had been at once exposed. It was lying almost freely in the position indicated just to the right of the pyloric end of the stomach, at first sight resembling a gall bladder. Induration had been present round its neck. It was resected and a gastro-enterostomy performed.

Many similar cases had been observed and all stages leading up to the above condition were demonstrated.

Dr. Cross said that the earliest deformation appeared to be a slightly oblique constriction almost parallel to the axis of the duodenal cap. This was probably due to spasm of certain of the longitudinal fibres that passed through the ulcerated area. The effect was to divide the cap into two compartments, one on the lesser curvature side, the other on the greater, giving rise to a "butterfly" deformation. Under the influence of gravity stasis of food occurred in the greater curvature pouch. This led to progressive dilatation, stasis being accentuated both by the latter and by cicatrization and gradual narrowing of the communication between the pouch and residual food channel through the duodenum.

A high percentage of distorted duodenal "caps," the result of ulceration, could be resolved into some stage or other of this type of deformation. Conversely the "butterfly" deformation could be accepted as confirmation of duodenal ulcer, even though a definite ulcer crater could not be demonstrated.

MR. H. B. DEVINE continued the discussion. His remarks will be found at page 330 in the form of an original article entitled: "Clinical and Radiological Difficulties in the Diagnosis of Lesions of the Prepylorus and Posterior Gastric Wall."

MR. B. T. ZWAR expressed his admiration for the radiological work which had been shown by Dr. Cross and Dr. Hewlett. He felt that surgeons were greatly indebted to radiologists for the way in which they had kept themselves abreast of the advances which had been made in radiology for the diagnosis of gastro-duodenal conditions.

For the real purpose of the discussion, namely, the value of radiology in the diagnosis of gastro-duodenal conditions, he had analysed a series of thirty gastro-duodenal cases in which the diagnosis based on the clinical history and investigation and that based on the X ray finding had been controlled by the operative finding. He felt that such an analysis would give an index of the relative value of X ray findings in gastro-duodenal conditions.

Of the thirty cases analysed eighteen had been characterized by gastric and twelve by duodenal conditions. In the eighteen gastric cases the operative findings had shown the diagnosis, based on clinical findings, to be correct in eleven (60%) and that based on X ray findings also to be correct in eleven cases (60%). A diagnosis based on clinical and X ray findings had been correct in fourteen cases or 77%. Of the seven errors of diagnosis based on clinical findings four were errors in locating the lesion, one was an error regarding the nature of the lesion, one regarding the nature of the lesion and its site and in one the operation had not disclosed anything abnormal.

Of the seven errors based on the X ray findings all (three) ulcers of the posterior wall of the stomach had escaped detection, two were errors as regards nature and site of lesion, one was an error as regards site and in one an ulcer had been diagnosed, but the operation did not disclose any obviously abnormal condition. Of the twelve duodenal cases the operative findings had shown the diagnosis based on clinical findings correct in six cases (50%) and that based on X ray findings also correct in six cases (50%), whilst a diagnosis based on clinical and X ray findings had proved correct in nine cases (75%).

Of the six errors in diagnosis based on clinical findings seven were errors as regards site of the lesion, in two a duodenal ulcer had been diagnosed and operation revealed a pathological condition of the gall bladder, but no duodenal ulcer.

Of the six errors based on X ray findings operation did not disclose any lesion in two cases in which an ulcer had been diagnosed, two were errors as to site, in one the lesion was that of a carcinoma of the pylorus instead of a duodenal ulcer and in one the operative finding was that of a pathological condition of the gall bladder instead of a duodenal ulcer.

In analysing these cases he had been much impressed with the unreliability of the X ray findings in the cases of ulceration confined to the posterior wall of the stomach. The series contained three such cases and all three ulcers had been missed in the X ray investigation. One of these had been of special interest and he desired to submit some details. It was that of a male, aged sixty years, in whom a diagnosis of chronic gastric ulcer had been made on clinical evidence. A radiogram, taken by Dr. Hewlett, had disclosed a perforating ulcer on the posterior wall of the stomach apparently adherent to the pancreas. The patient had been sent into a public hospital for operation and there two X ray examinations had shown the stomach outline to be apparently normal. These investigations had been carried out with a knowledge of the previous X ray finding; they were carried out with the aid of first rate equipment and by a most experienced, capable and careful investigator. Yet with all manner of devices he had been unable to produce a filling of the ulcer crater on the posterior wall with the barium meal. At operation a perforating ulcer nine millimetres in diameter, extending to the serosa and adherent to the pancreas, was removed by the transgastric route. Other errors of serious importance included the diagnosis of simple ulceration where the operation disclosed carcinoma. In the diagnosis of duodenal conditions the presence of a pathological state of the biliary tract was liable to lead to errors both on clinical and X ray findings, but the aid of cholecystography should help to reduce errors.

Radiography certainly was a useful aid in the diagnosis of gastric and duodenal conditions; the results were as yet far from perfect, especially in the investigation of the posterior wall of the stomach; the results of X ray investigations of stomach and duodenum should be carefully controlled by the results of the clinical investigation before it was decided to operate or to defer operation. It was important that the clinician should arrive at a tentative diagnosis in a gastric or duodenal condition based on the clinical history and clinical investigation of the condition and that he should use the X ray finding to confirm or elaborate this diagnosis. In some cases the X ray finding might open up a new aspect altogether, for example, diverticulosis. In all cases, however, was the control of the X ray finding essential. A normal X ray finding should not delay the time of surgical interference, if the results of clinical investigations were definitely in its favour. Complete coordination between clinical and X ray investigator was essential.

DR. COLIN MACDONALD demonstrated radiograms and discussed the following conditions: (i.) "Cascade" stomach,

(ii.) non-malignant penetrating gastric ulcer of the greater curvature, (iii.) carcinoma of the "silent" area of the stomach. He described the difficulty of X ray diagnosis of scirrhus of the lesser curvature not involving the orifices and drew attention to the difficulty that adiposity of the patient imposed on radiologists in the demonstration of early lesions.

He suggested that from the radiographic standpoint Canno's acid theory of pyloric control was not entirely satisfying, for example, gastric hypermotility was seen with non-obstructive duodenal ulceration which was so frequently associated with hyperchlorhydria. But the same hypermotility might also oe seen in carcinoma of the cardia or of the *pars media* of the stomach and also in *achylia gastrica* when achlorhydria was disclosed by a test meal.

In conclusion Dr. Macdonald described Åkerlund's analysis of the bulbar deformity in duodenal ulceration, namely, (i.) niche, this was not commonly seen, but when seen it was most frequently on the lesser curvature side of the cap outline, less frequently on the basal margin and exceedingly rarely on the greater curvature side, (ii.) niche or spasm, the most important element in the deformity, (iii.) retraction of the lesser curvature border, (iv.) eccentrically placed pylorus which was sometimes wider than normal and (v.) diverticulation, prestenotic in character and most frequently seen on the greater curvature side.

DR. J. R. BELL analysed the test meal findings in lesion of the upper alimentary tract.

DR. A. V. M. ANDERSON discussed the problem of gastric carcinoma from the point of view of the physician.

MEDICO-POLITICAL.

A MEETING OF THE COUNCIL OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held on January 6, 1927, DR. H. H. E. RUSSELL, the President, in the chair.

Sir George Buchanan.

A letter was received from Sir George Buchanan expressing his appreciation of the hospitality extended to him by the Council.

The Lister Centenary.

The Council approved the nomination by the Federal Committee of Mr. Hamilton Russell, of Melbourne, as Delegate to attend the Lister Centenary in the United Kingdom.

The Dental Board of South Australia.

The Secretary reported that, as it had been necessary to forward nominations to the Dental Board of South Australia prior to the Council meeting, Dr. R. H. Pulleine and Dr. A. R. Southwood had been nominated as the medical members after consultation with the President of the Branch.

The British Medical Hall Company, Limited.

The Secretary reported that at a meeting of the Directors of The British Medical Hall Company, Limited, held on December 7, 1926, a resolution had been passed to the effect that forty-two preference shares of ten pounds each, fully paid up and held by the Company for resale, should be offered to the South Australian Branch of the British Medical Association for purchase at par. It was resolved that the shares be purchased.

It was also reported by the Secretary that at the same meeting the following resolution had been passed:

> That the sum of £770 0s. 2d., representing the accumulated profits of the Medical Agency from its inception to the close of the year ended 10th July, 1926, be paid to the British Medical Association (South Australian Branch) on the understanding that the full amount will be invested in the Ordinary Shares of the Company. Further, that any future profits that may accrue will remain the property of the British Medical Hall Company, Limited.

It was reported that this resolution would require to be ratified at an extraordinary general meeting of the shareholders which was to be held at an early date.

Representative of the Branch on the Council of the Association.

Dr. F. N. Le Messurier reported the receipt of a letter from the Secretary of the Victorian Branch of the British Medical Association advising that Dr. T. P. Dunhill would be unable to continue to act as the Representative of the South Australian Branch on the Council of the Association as the six years maximum period had expired. The suggestion of the Victorian Branch that Sir Jenner Verrall, of Leatherhead, England, be also nominated by the South Australian Branch was approved.

The North-South Railway.

Dr. H. S. Newland referred to the early start which was to be made in laying the North-South Railway and to the danger of the outbreak of enteric fever in connexion therewith. He proposed that the Council should urge upon the Commonwealth Health Authorities the importance of inoculation and the necessity of tracing any carrier. It was resolved that a letter be written to the Acting-Minister of Health in regard to this matter.

NOMINATIONS AND ELECTIONS.

THE undermentioned were elected members of the New South Wales Branch of the British Medical Association:

Fraser, Donald Archibald Strong, M.B., 1925 (Univ. Sydney), Mental Hospital, Rydalmere.
Howe, Edmund James Glanville, M.B., 1926 (Univ. Sydney), The Hospital, Callan Park.
Letters, Napoleon Ignatius, M.B., Ch.M., 1924 (Univ. Sydney), Burrinjuck, *viâ* Goondah, Southern Line.
McKellar, Charles Crawford, M.B., Ch.M., 1926 (Univ. Sydney), 47, Gardyne Street, Waverley.
Stocks, Alfred William John, M.B., Ch.M., 1926 (Univ. Sydney), Kerrisdale, Wahroonga.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Byrnes, Richard Edward Nicholas, M.B., B.S., 1926 (Univ. Melbourne), 22, Jolimont Road, Jolimont.
Collins, Reuben, M.B., B.S., 1926 (Univ. Melbourne), 78, Gladstone Street, Kew.
Langlands, Kenneth Latham, M.B., B.S., 1926 (Univ. Melbourne), Austin Hospital, Heidelberg.
Bonwick, James Montague, M.B., B.S., 1926 (Univ. Melbourne), 19, Clarence Street, East Malvern.
Giblin, Thomas, M.B., B.S., 1926 (Univ. Melbourne), Melbourne Hospital.
Lynch, John Adrian, M.B., B.S., 1925 (Univ. Melbourne), 6, Finch Street, East Caulfield.
Chapman, Frederick James, M.B., B.S., 1926 (Univ. Melbourne), Union Club Hotel, Fitzroy.

The College of Surgeons of Australasia.

FOUNDATION OF THE COLLEGE.

THE first meeting of the Founders of The College of Surgeons of Australasia was held in Dunedin, New Zealand, on February 5, 1927.

The following were present: Sir George Syme, the first President, Dr. H. T. D. Acland, Dr. L. E. Barnett, Sir James Barrett, Mr. Gordon Craig, Mr. H. B. Devine, Sir Lindo Ferguson, Dr. A. L. Kenny, Mr. B. Kilvington, Dr. A. M. Morgan, Dr. H. S. Newland, Sir Donald McGavin, Dr. F. Antill Pockley, Dr. J. Ramsay, Dr. Carrick Robertson, Dr. W. N. Robertson, Mr. R. Hamilton Russell, Dr. D. S. Wylie. Apologies for non-attendance were received from

Dr. E. T. Thring, Dr. R. H. Morrison, Dr. T. G. Wilson, Dr. J. Lockhart Gibson and Dr. W. Anstey Giles.

SIR GEORGE SYME said that it had been thought advisable that he should refresh the minds of those present by a review of the steps that had been taken to found The College of Surgeons of Australasia. They would remember that the idea of such a body had first been suggested by Dr. L. E. Barnett who had written a letter to the Section of Surgery of the Australasian Medical Congress at the meeting in Brisbane in August, 1920. The Section had rejected a motion approving the idea that an appropriate scheme should be formulated and had carried amendments (i.) that a section of surgery should be formed in each Branch of the British Medical Association in Australasia and (ii.) that an endeavour be made to secure uniformity in the surgical degrees granted by the Universities in Australasia and that they should provide a higher surgical degree, separate from the pass degree. As a result a Section of Surgery had been formed in the New South Wales Branch and a separate higher degree of Master of Surgery had been instituted in the Universities of Sydney and New Zealand. It was already in existence in the Universities of Melbourne and Adelaide. These degrees, however, had not been made uniform. The Victorian Surgical Association previously established, had continued its existence. Nothing more had been done until the idea of an Australasian College of Surgeons was renewed by the visit in February, 1924, of Dr. W. Mayo, Dr. Franklin Martin and other American surgeons and their offer to admit leading surgeons to the Fellowship of the American College of Surgeons on a charter membership basis. Twenty-five surgeons had been so admitted and some had attended the meeting of the College in 1924 when this was done. These Australasian Fellows of the American College of Surgeons recognized that the principles they had agreed to uphold, ought to be maintained by everyone practising surgery. How could some body be best established to maintain and improve the best traditions of the ethics and practice of surgery? The attempt through the congress had failed. Should another attempt be made at the Dunedin meeting or should another method be tried? A few senior surgeons discussed the subject in Melbourne and as he (Sir George Syme) was travelling about Australia with the Royal Commission on Health, he undertook to approach senior surgeons in Sydney first and when he had found that they approved in other capital cities. He had found a general approval of the project and it had been suggested that Mr. Hamilton Russell and he, being retired, could most advantageously take the initial steps. Mr. Devine, who had been with Mr. Russell at the New York meeting of the American College of Surgeons and was very keenly interested in the proposed Australasian College, had kindly undertaken to act with them in a secretarial capacity. They had drafted and issued a circular letter to senior surgeons and surgical specialists in New Zealand and Australia except in Victoria, asking if they would be willing to become foundation members of the proposed body. The response had been unanimous and the circular had then been sent to surgeons in Victoria and had met with an equally satisfactory reply. In February, 1926, an informal meeting had been held of surgeons and surgical specialists who were attending meetings in Melbourne of the Federal Committee of the British Medical Association in Australia and of the Directors of the Australasian Medical Publishing Company, Limited, This meeting had drafted a rough provisional constitution and had suggested the names of other surgeons in each State of Australia who should be invited to state if they would be willing to become foundation members. It had further been decided that the whole subject should be discussed by surgeons and specialists in New Zealand and the States of Australia.

The Surgical Section of the New South Wales Branch of the British Medical Association and the Victorian Surgical Association had considered the proposals and had approved them. Meetings had then been called of those willing to be foundation members in New Zealand and in each of the States in Australia. At these meetings delegates had been appointed to a meeting which was held in Sydney in August, 1926. The delegates had formulated a constitution and from those who had intimated their willingness to become foundation members had elected forty Founders who had thereupon signed the exordium and had founded the College of Surgeons of Australasia.

The delegates had elected a provisional executive committee to take further necessary steps in connexion with the foundation of the College. This executive committee had invited nominations for the council and had held a ballot of those nominated. It had also arranged for the meeting at which he spoke.

The procedure thus reviewed had been subjected to adverse criticism, particularly in Queensland. It had been said that the whole profession should have been taken into confidence and should have had a voice in the organization of the College and that full publicity should have been given to what had been done. It had been claimed that America had set a precedent in these matters. It was true that the proposals to found the American College of Surgeons had been submitted to the Clinical Congress of American Surgeons, but not to the general body of the profession. In Australasia no body exactly corresponding to the Clinical Congress of Surgeons of America existed. The only competent body, the Surgical Section of the Australasian Medical Congress, had turned down the proposals made at the Brisbane meeting. It had therefore seemed best to those interested in the establishment of the College to try another procedure. It was for that meeting to endorse or otherwise what had been done.

THE HONORARY SECRETARY reported that nineteen Founders had been nominated for election to the Council of the College. A ballot had been taken and thirty-three of the forty Founders had recorded their votes. These had been scrutinized by Dr. Cooper Pattin, the representative of the British Medical Association at the Australasian Medical Congress (British Medical Association), Second Session, Dunedin, 1927, and by Dr. R. R. Stawell, of Melbourne, who had reported as follows:

1. Dr. L. E. Barnett.
2. Mr. R. Gordon Craig.
3. Mr. H. B. Devine.
4. Dr. A. L. Kenny.
5. Dr. H. S. Newland.
6. Dr. W. N. Robertson.
7. Mr. R. Hamilton Russell.
8. Professor F. P. Sandes.
9. Sir George Syme.
10. Dr. Ralph Worrall.

The Council held its first meeting in Dunedin on February 4, 1927, and appointed the following officers of the College:

President: Sir George Syme.

Vice-Presidents: Sir Alexander McCormick, Dr. L. E. Barnett.

Honorary Secretary and Treasurer: Dr. A. L. Kenny.

Director-General: Sir George Syme.

THE HONORARY SECRETARY read the By-Laws recommended by the Council. These were discussed, altered, added to and adopted in the following form.

BY-LAWS.

1. There shall be a Council of ten to be elected by postal vote of the Fellows of the College.

2. The Council shall elect the following officers: President, two Vice-Presidents, Honorary Secretary and Treasurer, Director-General, who need not necessarily be members of the Council.

3. Six shall be the quorum of the Council.

4. The Council shall appoint an executive committee of the Council consisting of the President, Honorary Secretary and three other members of the Council. The Executive Committee shall determine its quorum.

5. The Council shall appoint a credentials committee for each State and for the Dominion. There will be three members each for New South Wales, Victoria and New Zealand and two members each for Queensland, South Australia, Western Australia and Tasmania.

Duties of Credential Committees.—All applications for Fellowship of the College are to be sent to the Director-General who will send them to the Credentials Committee of the State or Dominion from which the applicant applies. The Credentials Committee must report in full for and against each applicant and send this report to the Director-General who will remit it to the Council for final decision.

The following were appointed members of the State and Dominion Credentials Committees:

New South Wales.—Sir Alexander McCormick, Dr. C. P. Clubbe, Dr. T. Fiaschi.

Victoria.—Sir George Syme, Mr. Hamilton Russell, Dr. W. Moore.

New Zealand.—Sir Lindo Ferguson, Dr. L. E. Barnett, Dr. Carrick Robertson.

Queensland.—Dr. E. S. Jackson, Dr. W. N. Robertson.

South Australia.—Dr. W. Anstey Giles, Dr. H. S. Newland.

Western Australia.—Dr. W. Trethowan, Dr. F. A. Hadley.

Tasmania.—Dr. J. Ramsay, Dr. D. H. E. Lines.

Application for Membership.—A candidate shall be nominated by three Fellows of the College (in the State in which he resides) who shall apply to the Secretary for an application form to be filled in by the candidate. This form will contain the following information signed by the candidate and his three nominators, date and place of birth, preliminary education, medical schools attended as an undergraduate and as a graduate, hospitals in which residentship was served, period of assistantship and with whom, present hospital appointments, medical teaching positions, speciality and period of specialization, percentage of professional activity devoted to surgery or one of the surgical specialities, research conducted, medical society membership, a list of personal contributions to medical literature. The candidate is also required to furnish five references and to sign a pledge. The College will endeavour to verify the statements in this application form. Each individual given as a reference will be communicated with and asked to fill in a comprehensive *questionnaire* that will furnish definite statements about the candidate's surgical judgement and ability and confidential information about his moral and ethical standing. A *questionnaire* will also be sent to Fellows of the College who live in the vicinity of the candidate. When all the foregoing data have been received, the Director-General will then present the candidate's application to the Credentials Committee in the candidate's State for recommendation. The State Credentials Committee, acting as a preliminary court, will make its recommendation upon the evidence presented together with such facts concerning the candidate as may be in the possession of the individual members of the Committee because of personal acquaintance. In making such recommendation the Credentials Committee shall take into consideration the following: (i.) Character and conduct, *id est* the applicant shall reflect in his practice high ideals of service and conduct, (ii.) specialization in surgery or in one of its special departments, (iii.) extent of experience (not less than five years' surgical practice), (iv.) hospital appointments, (v.) evidence as to competency in surgery (course or work), (vi.) surgical research, (vii.) after five years from February 5, 1927, the candidate must possess a senior surgical qualification, but at the discretion of the Council in the case of candidates of exceptional surgical ability or experience this requirement may be dispensed with, (viii.) in order to foster the closest possible harmony with the British Medical Association the Credentials Committees are required to inquire into the eligibility of candidates for membership of the British Medical Association.

6. *Election of Council*—

(*a*) The Council shall be elected to hold office for two years provided that one-half of the members elected at the first election (February 2, 1927) shall retire at the end of one year and that the Council shall determine by lot which of such members shall retire. All members shall be eligible for reelection.

(*b*) The Council shall be elected by postal ballot from the whole Fellowship.

(*c*) The President, the two Vice-Presidents and the Honorary Secretary and Treasurer shall hold office for two years.

(*d*) In the event of the death or resignation of a member of the Council his successor shall be the next highest on the original poll.

7.—*Annual Subscription.*—The annual subscription shall begin in February each year, existing subscriptions to carry on to February, 1928.

8. *Expulsion of Members.*—Any Fellow of the College may be expelled by a two-thirds majority of the whole Council (the nearest whole number shall be taken) for a violation of the constitution and exordium. The Fellow shall have the right to be heard at the meeting at which his expulsion is under consideration.

9. *Annual Meeting.*—The annual meeting of Fellows shall be held as determined by tne Council:

Business.—

(*a*) To receive the report of Council,

(*b*) To receive the statement of receipts and expenditure,

(*c*) To discuss any proposed amendment of the Constitution of which notice shall have been given not less than six months before the annual meeting,

(*d*) General business,

(*e*) Scientific discussions and practical demonstrations of surgical subjects.

10. *Treasurer.*—The Treasurer shall receive all funds of the College and disburse the same on cheques signed by him. He shall furnish a detailed statement of the moneys received and expended at the annual meeting of the College.

11. The duties of the Council shall be to carry on all the business of the College. The Council shall determine the method of calling its meetings.

12. At least one meeting of Fellows must be held in each State or the Dominion annually and a distinguished surgeon from another State or the Dominion shall be invited to deliver an address at that meeting. The arrangements should be made six or twelve months ahead.

The Council shall appoint a committee for each State and the Dominion selected from the Fellows in such State or Dominion to carry out such duties as may be delegated to it by the Council. Each committee shall appoint a chairman and a secretary. Such committee shall be composed of seven Fellows in New South Wales and in Victoria, six Fellows in the Dominion of New Zealand (three from the North and three from the South), in Queensland and in South Australia and three Fellows in Western Australia and Tasmania.

12. The Council shall draw up regulations for the admission of honorary Fellows from outside the Commonwealth and the Dominion.

The Executive Committee of the Council was authorized to obtain legal advice as to the proper method of formation of a body or bodies to carry out vigilance duties and to form such a body or bodies.

It was resolved that all proceedings and reports of Credentials Committees and of Vigilance Committees shall be confidential.

The question of a base for the College at Canberra was left to the judgement and discretion of the President.

It was resolved that all the surgeons and surgeon-specialists who had been invited and had consented to become provisional foundation members in the preliminary meetings for the formation of the College, be elected Foundation Fellows of the College.

The Council was instructed to appoint at once a local committee in Queensland and New Zealand to secure the consent of the surgeons and surgeon-specialists on the lists held by Dr. W. N. Robertson and Sir Donald McGavin.

The Founders of the College residing in Queensland and New Zealand were appointed a committee in each place to secure the consent of provisional foundation members and to submit their names to the Executive Committee for inclusion as Foundation Fellows of the College.

A meeting of the Council of the College was held immediately after the conclusion of the first meeting of the

Founders and the following were appointed to be the Executive Committee of the Council of the College:

President: Sir George Syme.

Honorary Secretary and Treasurer: Mr. A. L. Kenny.

Members: Professor F. P. Sandes, Dr. H. S. Newland, Mr. H. B. Devine.

A meeting of the Council was held at Dunedin, on February 7, 1927, eight members were present.

The Council instructed the Executive Committee to draw up a by-law for the election of junior members of the College.

It was resolved that an endowment fund be established and that Fellows be invited to subscribe thereto.

The Executive Committee was instructed to appoint trustees to hold property of all kinds in trust for the College.

The Council was empowered to fix an entrance fee if and when it was considered desirable.

It was resolved that the New South Wales list of provisional foundation members as regards election to Fellowship should be placed upon the same basis as that of New Zealand and Queensland, namely, that the Founders of the College in the State of New South Wales should act and report to the Executive Committee.

The first meeting of Founders was continued on February 8, 1927, in Dunedin. Sir James Barrett and Dr. F. Antill Pockley were unavoidably absent. The resolutions of the Council meeting of February 7 were confirmed. The endowment fund was opened by gifts of twenty-five pounds (£25) each from Dr. Gordon Craig and Sir Lindo Ferguson. The following promised twenty-five pounds each: Mr. H. S. Devine, Dr. W. N. Robertson, Sir George Syme, Dr. G. S. Wylie. It was resolved that the entrance fee when imposed be earmarked for the endowment fund. The question of the word "Australasia" in the title of the College was very fully discussed and all the Founders were agreed that the title should remain as adopted by the delegates at their meeting in Sydney in August, 1926. It was generally accepted that Australasia included New Zealand.

Mr. R. Hamilton Russell was appointed as a delegate of the College to the Lister Centenary Celebrations.

The Honorary Secretary notified members that a parchment for the roll of membership would be prepared and forwarded to the Union Bank of Australia, Limited, in each town where a Fellow resided in order that he might be able to sign the roll.

A form of certificate of Fellowship would also be drawn up and sent to Fellows.

The Founders discussed the question of a surgical journal.

Obituary.

SINCLAIR FINLAY.

Charm of manner, a scintillating Irish wit and a keen sense of humour were some of the qualities of Dr. Sinclair Finlay whose death was recorded in a recent issue. Although it is nine or ten years since failing health compelled him to seek retirement, his innumerable friends and patients (his patients were his friends) remember with gratitude the courteous gentleman who gave them of his best during years of strenuous hard work.

The son of Francis Finlay, a lawyer of Corkville, Ireland, Sinclair Finlay was born in County Cavan sixty-seven years ago. He was educated at the Royal School, Rafoe, Ireland, and manifested his ability at an early stage. He became *dux* of his school and shared with Dr. Ramsbottom, afterwards Governor of the Transvaal, a reputation for brilliance. The medical course in those days was not so extensive as at the present time and so it happened that at the early age of eighteen years Sinclair Finlay, a legally qualified medical practitioner, found himself as medical officer in charge of a smallpox outbreak in Dublin Bay. He gained the diplomas of licentiate and licentiate in midwifery of the King and Queen's College of Physicians of Ireland and licentiate of the Royal College of Surgeons of Ireland.

After practising for a short period at Walsall, England, Finlay came to Australia and took up practice at Stroud, New South Wales. Here he had a vast area to cover and he worked hard. He was appointed Government Medical Officer of the Port Stephens District and with the exception of three years spent at Dungog he remained at Stroud, until he removed to Balmain, where he succeeded Dr. Joseph Bott in an old established practice. Before settling in Balmain, Sinclair Finlay went back to Ireland and secured the diploma of Fellow of the Royal College of Surgeons of Ireland. In Balmain he soon secured for himself a place in the affections of the people. Children took to him instinctively and were as fond of him as he of them. While he was at Balmain he suffered from septicæmia following on a wound of the finger sustained at an operation. This illnesss nearly cost him his life; as it was his health was broken by it. He went for a trip to England in 1911 in an endeavour to recuperate and was partially successful. After his return he settled in Hunter's Hill where he soon gathered a *clientèle*. It was not long, however, before he was compelled to give up active practice altogether.

Sinclair Finlay was always loyal to his profession. It was typical of him that he was proud to have been one of the first to take up debentures in the B.M.A. Building in Elizabeth Street, Sydney. He served the Balmain and District Hospital for many years as honorary medical officer.

Sinclair Finlay had an unusual gift of inspiring confidence. It is a commonplace to say that patients love their doctor, but this was so of Finlay in an unusual way. Few who were present at the gathering which did him honour on the eve of his departure from Balmain, will forget the way in which people of every station in life joined in what was a most remarkable demonstration. He was a good speaker and on that occasion he excelled himself. Of his home life much might be written. He married early in life Ethel, the daughter of the late Captain Richard Cook, Assistant Secretary for Ireland. Six sons were born of the union. Two are medical practitioners and Finlay had the joy of seeing them all grow to man's estate and a credit to their upbringing. Sinclair Finlay's wife died two years ago. His sons will derive comfort from the thought that his memory will be kept green in the hearts of many who trusted him as a doctor, admired him as a man and loved him as a friend.

ROBERT BERNARD PEARSON MONSON.

The death of Dr. Robert Bernard Pearson Monson which was recorded in the issue of February 19, 1927, will be a loss to the community in more ways than one. Not only was he a practitioner who loved his work, and who worked hard, but he found time in the rush and bustle of everyday life to carry out research in the subjects in which he was interested. Such men are unfortunately rare.

Bernard Monson was born in Christchurch, New Zealand, in 1889. He was educated at Waitaki Boys' High School. He was fond of sport and though he was not fortunate enough to excell at either, he played both cricket and football with zest. Studying medicine at Otago University, he gained the degree of bachelor of medicine and bachelor of surgery and went straight into practice as assistant to Dr. McBrearty at Greymouth. Here he remained for two years, gaining confidence and experience. Hokitika was the next scene of his labours and after eighteen months he bought a practice at Westport. He was happy at Westport; he gained his degree of doctor of medicine and it seemed as though the gods were propitious. His serenity, however, was not to last. War clouds had gathered and broken and Bernard Monson answered the call. He saw service in Sinai and Palestine in 1916 with the Anzac Mounted Division. He acted as medical officer of the Canterbury Mounted Rifles. His health could not stand the strain, however, and he was invalided home after twelve months of front line work.

The war seems to have been the turning point in Bernard Monson's career, as it was in the case of so many other men. He returned to Westport for a while, but

could not be content with small things. He determined to seek a wider sphere of action. He went to Edinburgh and sat for the examination for the Fellowship of the Royal College of Surgeons of that city. He gained the diploma and was placed in the honours class. From Edinburgh he went to London. Here he spent twelve months, being in turn clinical assistant at the London Hospital, clinical assistant at Chelsea Hospital and clinical assistant at the Cancer Hospital. He then went to Paris and studied gynæcology and abdominal surgery under de Martel, Pauchet, Duval, Marion and Gosset. From there he went to Vienna where he studied for five months at Eiselberg's clinic. He studied surgical pathology under Stoerke and Erdheim. Work in this city was very trying. The Austrians had not recovered from the effects of the war and living conditions were not congenial and the rigours of the winter were hard to bear. Encouraged by the optimism of his wife, he completed his programme of work and then went to Berlin for two months where he worked at the clinics of Bier and Lengenbeck. Feeling that he was equipped for surgical practice, he returned to the Southern Hemisphere and started practice in Sydney. Here he soon gained an appointment as assistant surgeon at the Lewisham Hospital and tried to take his share in the medical matters of the day.

It was now that Monson was able to gratify the wish of his earlier years. He found time to engage in some original work at the University of Sydney. He carried out experimental work on the intrauterine transplantation of the ovary and communicated the results to the Section of Obstetrics and Gynæcology of the New South Wales Branch of the British Medical Association. A second piece of his experimental work was published in the pages of this journal last year on muscle trauma caused by the common incisions used in laparotomy. In addition to carrying out this work Monson found time to act as honorary demonstrator in anatomy at the University of Sydney.

Enough has been said to show what manner of man was Bernard Monson. His was an inquiring type of mind that was impelled to probe every problem and to find out the why and the wherefor of things. The medical profession is the poorer for his death. His solicitude for those near and dear to him when he knew that his myocardium was irretrievably damaged was typical of him. To his wife and two children the warm sympathy of the medical profession is extended.

University Intelligence.

UNIVERSITY OF SYDNEY.

Macdonald Presentation Fund.

A COMMITTEE has been formed for the purpose of making a presentation to Mr. George Macdonald in the Medical School of the University of Sydney on his departure on leave of absence from Sydney. The members of the committee are: Professor D. A. Welsh (chairman), Professor A. E. Mills, Professor F. P. Sandes, Professor J. C. Windeyer, Dr. W. Keith Inglis, Dr. J. E. V. Barling, Dr. H. J. Wilkinson, Dr. F. A. Maguire, Dr. O. Latham, Dr. H. R. Arnott, the Editor of THE MEDICAL JOURNAL OF AUSTRALIA, Mr. R. G. O. Harris (representing the sixth year medical students), Mr. R. J. Waddington (representing the fifth year medical students). The honorary treasurers are Dr. B. T. Edye and Mr. L. Schaeffer and the honorary secretaries are Mr. F. Hedger and Mr. R. Muir.

The following letter of appeal to past students of the Medical School of the University of Sydney and to others interested has been issued. It is felt that there are many who would wish to be associated with this expression of appreciation of one who has done so much to help both the students and the school.

Mr. George Macdonald, Chief Laboratory Assistant in Pathology at the University of Sydney, has been granted six months' leave of absence and hopes to sail at the end of March on a visit to Scotland. He has been closely associated with Professor Welsh in the teaching and development of pathology since 1902, first at the Royal Prince Alfred Hospital and for the last twenty years at the University. Each succeeding year of undergraduates recognizes that it owes a debt of gratitude to "Mac" for his ever ready and most able help and everyone would admit that the Medical School would be a much less happy place without his sincere and lovable personality. Those who work with him and who know him best, realize most truly his uprightness, his unselfishness and his unsparing devotion to his work.

To express something of the high esteem in which he is held by his colleagues, by the students and by graduates of many years' standing, a presentation fund has been opened by a committee under the chairmanship of Professor Welsh and those who wish to join in this send-off to Macdonald are requested to forward their subscriptions to the Honorary Treasurers, Dr. B. T. Edye and Mr. Louis Schaeffer, Medical School, University. As it is impossible to reach all his well-wishers by circular letter, it is hoped that those who are interested, will direct the attention of others to this notice.

The subscription list stands at £34 13s.

Professor D. W. Welsh	£5	5	0
Dr. H. R. Arnott	5	5	0
Dr. J. E. V. Barling	5	5	0
Dr. B. T. Edye	5	5	0
Dr. George Bell	3	3	0
Dr. Marjory Little	3	3	0
Dr. E. A. Brearley	2	2	0
Dr. F. T. Allen	1	1	0
Dr. Colin Anderson	1	1	0
Anonymous	1	1	0
Mrs. Welsh	1	1	0
Dr. A. Bulteau	0	10	6
Miss Kathleen Fosbery	0	10	6

Correspondence.

THE RED-BACKED SPIDER BITE.

SIR: In the last few weeks, quite a lot has appeared in the lay press *re* the effects of bites by the common red-backed spider—in fact a case is quoted where a baby died from the effects of a bite.

During the last four years I have had the opportunity of studying the effects of bites in nine cases, none of which proved fatal. The patients in nearly all cases were bitten on or about the genitals. In my series of cases the general toxic symptoms appeared after a period of two or three hours.

Primarily there is an intense burning pain at the site of the lesion which persists for some days. The patients then complain of a feeling of numbness, most often first felt in the feet and legs, which in severe cases gradually extends upwards. In one case this extended upwards as far as the lower border of the thorax.

The patients suffer excruciating pain for a variable period up to a week and yielding only to morphia administered frequently. A marked feature of the case is the violent shivering and the profuse sweating, the latter having a peculiar, sour odour. My treatment has been to thoroughly scarify the initial lesion and to rub in a solution of ammonia. In the last two cases this has aborted the severe general symptoms. When the latter are well established only symptomatic treatment seems to be of any avail. Recently I have heard good reports from the use of antitetanic serum, but so far I have had no opportunity of trying it.

I can find no reference to the condition in textbooks and would be pleased to hear the opinions of other medical men in regard to the treatment of what, to country practitioners at least, must be a comparatively common condition.

Yours, etc.,

E. H. MILES.

Yeoval, New South Wales,
February 22, 1927.

HYPNOTIC SUGGESTION.

SIR: Dr. Richard Arthur writes in your issue of the twelfth instant that "of late this cult has fallen on evil days. The psychoanalysts pour their contempt upon it, the Christian scientists and other fancy religions denounce it as of the devil and Monsieur Coué and his disciples regard it as a stumbling block." How about our physicians? Dr. A. F. Hurst, formerly a hypnotist, as were a number of our physicians, has given up the use of "hypnotism's benign influence" for "it was so easy and the results were so miraculous if the patient were not seen again after a little time. It was just like giving morphine to a patient with acute appendicitis. The symptoms clear up amazingly and the attack may pass off." Another leading hypnotist and physician says: "Many persons have become mentally deranged and physically worse for improper treatment of their subconscious minds."

The "secret power" may not only be used for medical purposes but, "when occasion may arise," might be useful in business and social affairs and should prove to be a two-edged sword in the hands of the "young practitioner."

The secret hypnotist in exercising his "benign influence" on the community has probably been largely resonsible for the fact that "this cult has fallen on evil days."

Yours, etc.,

R. A. PARKER.

140, Sackville Street, East Kew, Victoria.
February 17, 1927.

QUININE AND PREGNANCY.

SIR: *Re* the inquiry by one of your correspondents about the administration of quinine during pregnancy, the following case may be of interest:

Mrs. K. (*ætatis* forty-two) came down from the bush in order to terminate her pregnancy (fourteenth child) in the city and wished to have her varicose veins treated at the same time. I treated them by the sclerosing method of Sicard and, as they resisted the action of sodium salicylate, I used the quinine-urethane solution. During the eighth and part of the ninth month she had about a dozen injections without any apparent effect on her pregnancy which went to full term and normal labour.

Yours, etc.,

L. CRIVELLI.

105, Collins Street, Melbourne,
Undated.

THE ANATOMY OF THE FEMALE PELVIS.

SIR: In the splendid work of Dr. F. A. Maguire on this subject there is just one aspect of the matter which appears to need reconstruction.

The author says that "the pelvic connective tissue lying beside the uterus and vagina . . . forms the direct lateral support of the uterus and vagina, slinging them from the pelvic wall in the region of the greater sciatic notch and ischial spine" (page 187).

On a former occasion, I pointed out (THE MEDICAL JOURNAL OF AUSTRALIA, January 31, 1925) that Dr. Maguire had overlooked the fact that this lateral connective tissue was packed with smooth involuntary muscular fibres, which radiate laterally outwards from the neck of the uterus and fill in the base of the broad ligament, as described by the late Arthur Nyulasy at the Australasian Medical Congress of 1914.

Dr. Maguire now admits that there is a "certain amount" of plain muscular tissue intermingled with the pelvic connective tissue, but says there is no evidence in his dissections of any separate bands of ligamentous tissue corresponding to Mackenrodt's or the cardinal ligaments. Here he differs profoundly from several competent authorities—anatomists and well as gynæcologists.

But a good deal depends upon how the dissection is made. The late Arthur Nyulasy wrote in 1914 that "the cardinal ligaments may be readily demonstrated in the abdomen of the dead subject by turning the bladder down from the uterus, as in the operation of subtotal hysterectomy. After locating the ureter, the cardinal ligaments may be dissected from the posterior layer of the broad ligament and thus completely isolated. Hooking the ligament up on the finger, it is found to be elastic and of considerable strength and obviously quite capable of adequately supporting the uterus in the pelvis."

As bearing out these observations, may I commend to Dr. Maguire's notice the emphatic declaration of the eminent anatomist, Professor A. F. Dixon, when speaking in 1919 on "The Supports of the Uterus," (*vide The British Medical Journal*, March 29, 1919, page 378). Professor Dixon said the support of the uterus "was mainly applied at the lateral aspect of the cervix and at the lateral aspect of the vagina. Here the subperitoneal tissue was packed with smooth muscle and connective tissue fibres, radiating outwards along the vessels and nerves which abounded in this region. The dense mass was continuous with the muscle wall of the cervix and vaginal fornix and not merely adherent to these structures; in front it was continuous with the muscular wall of the lateral angle of the bladder and formed the ureteral sheath."

This description is almost identical with that given by the late Arthur Nyulasy, five years previously, in THE MEDICAL JOURNAL OF AUSTRALIA.

Yours, etc.,

FRANK A. NYULASY.

Melbourne,
February 5, 1927.

A MATTER OF GREEK.

SIR: I regret that Dr. Griffiths does not understand my criticism of his translation of *Iliad* XI., 514. Homer states that "a physician is a man worth as much as many others" and in the next line explains the point of view from which his worthiness exists, *videlicet* "to cut out arrows." Dr. Griffiths renders this "the physician is the most honourable of men." I have carefully reread the whole episode, but can find no mention in it of any honour due to the physician. Dr. Griffiths heartlessly divorces the line from its context, loftily ignores the two words "many" and "others," with a licence more than poetic, renders by a superlative "most honourable" a positive adjective meaning "worth as much as" and still claims that his version is a permissible translation! I submit on the other hand that it is no translation at all, but the expression of an entirely different sentiment. Surely Dr. Griffiths must see that without doing violence to the precision of thought and expression which he so justly desires should obtain, it is impossible to regard the two phrases "most honourable" and "worth as much as" as having the same meaning. In spite of his treatment of the hexameter and its consort, I mean context, I feel little doubt that in their own particular lines Honest Iago, L. Borgia, Fagin and Jack the Ripper were worth as much as a dozen men like Dr. Griffiths or even myself, but if they were to any large extent honourable the fact has unfortunately escaped my observation. Nor, despite the self-interested anxiety of the Greeks for the welfare of the chief of their A.M.S., can I discern "a rare compliment to a colleague" in the passage under discussion. This is a mere truism and implies nothing more than that when punctured heroes need treatment one qualified surgeon is worth a host of other men whose studies, however intense, have been devoted entirely to the complementary but very different art of providing him with patients.

Yours, etc.,

ERIC JEFFREY.

4, Douglas Avenue,
Lower Sandy Bay, Tasmania,
February 17, 1927.

MENDEL AND GENIUS.

SIR: I intend this note to be final on my part. I have already expressed my opinion upon the subject under survey and to the interested and unbiassed reader, what I now write is merely an amplification of my former note.

The emotional atmosphere in which the parents of a child have been reared, may have a transmitted effect on such child's attitude to a religious faith during its lifetime and this is a condition common not only to religious faith, but to national ideas and sympathy. Mendel's law has, I believe, given a satisfactory explanation to this branch of psychological study. I recognize that valuable scientific work has been done in the past by priests and Catholic laymen. It must not be forgotten, however, that the Catholic churches had, when in power, a drastic method of dealing with scientific thought, where there appeared to be the possibility of conflict between church and intellect. Scientific genius is not peculiar to any faith or nationality. Mendel's law during his lifetime had not been extended beyond the vegetable world and he could have had no conception of its ultimate development. I do not concur with the statement that Darwin's work is now discredited by practically the whole scientific world. On the contrary, I believe that this law emphasizes and adds to Darwin's work. Religious faith is in my opinion largely the result of a certain inheritance of mind, capable of being explained by Mendel's law and this is supported by the clinical evidence of human life in its varying phases of traditional belief.

Yours, etc.,

G. H. TAYLOR.

Mosman, New South Wales,
Undated.

BACKFIRE FRACTURE OF THE FOREARM.

SIR: Reading a leading article in *The British Medical Journal* of December 18, 1926, on "Backfire Fracture of the Forearm" recalls to me an interesting case which occurred in the country.

The patient, a motor mechanic, was cranking a car which backfired. The starting handle struck his right wrist, fracturing the radius at the site of the ordinary Colles's fracture. In addition the force of the blow was so severe that the whole hand and wrist was dislocated backwards to such an extent that the styloid process of the ulna perforated the skin on the anterior aspect of the wrist joint and protruded for about half an inch. This fracture dislocation resulted in his fingers being laid back on to the dorsum of the forearm. Prompt reduction and treatment on the ordinary lines of a Colles's fracture with early massage resulted in a return to work in six weeks.

Yours, etc.,

"RUS IN URBE."

Undated.

Naval and Military.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 2, 11, 14 and 16 of January 3, February 3, 10 and 17, 1927.

AUSTRALIAN MILITARY FORCES.

Royal Military College.

Colonel A. G. Butler, D.S.O., V.D., Australian Army Medical Corps, is appointed, temporarily, Officer in Medical Charge, Royal Miltary College, with pay at the rate of £550 per annum, inclusive of all allowances except travelling, and is seconded from the Australian Army Medical Corps, 1st Military District, whilst holding such appointment, 14th January, 1927.

First Military District.

Staff.

Colonel A. G. Butler, D.S.O., V.D., Australian Army Medical Corps, relinquishes the appointment of Assistant Director of Medical Services, 5th Divisional Head-Quarters, 13th January, 1927.

Australian Army Medical Corps.

Captain (provisionally) W. M. Butler is transferred to the Australian Army Medical Corps Reserve, and to be Honorary Captain, 1st February, 1927.

Second Military District.

Australian Army Medical Corps.

To be Captain (provisionally)—Miles Gordon Kite, 8th December, 1926. The resignation of Captain (provisionally) B. F. M. Maguire of his commission is accepted, 8th December, 1926.

To be Captain (provisionally)—John Leah, 15th December, 1926. Captain A. M. Purves, M.C., is appointed from the Australian Army Medical Corps Reserve, 16th December, 1926. The provisional appointment of Captain N. H. Meacle is confirmed. Captain (provisionally) B. A. Sinclair is transferred to the Australian Army Medical Corps Reserve, and to be Honorary Captain, 1st January, 1927.

Lieutenant-Colonel J. J. Hollywood is transferred to the Unattached List, 21st December, 1926; Lieutenant-Colonel J. S. Purdy, D.S.O., V.D., is brought on the authorized establishment of Lieutenant-Colonels, 2nd September, 1926.

Australian Army Medical Corps Reserve.

Captain A. R. Fletcher is transferred from the Australian Army Medical Corps Reserve, 4th Military District, 20th January, 1927; the resignation of Honorary Captain J. Macpherson of his commission is accepted, 12th January, 1927.

Third Military District.

Australian Army Medical Corps.

Major I. Blaubaum is brought on the authorized establishment of Majors, 1st September, 1926; Lieutenant-Colonel H. R. Catford is transferred to the Unattached List, 1st January, 1927.

Captain P. Shaw is transferred to the Australian Army Medical Corps Reserve, 1st January, 1927.

To be Majors—Captains C. W. Adey and F. W. Jackson, 12th January, 1927; Captain R. H. Small is appointed (provisionally) from the Reserve of Officers, 12th January, 1927. *To be Captains (provisionally) supernumerary to the establishment pending absorption*—Harrie Edward Pearce and Clive Hamilton Fitts, 28th January, 1927, and 1st February, 1927, respectively. *To be Lieutenants (provisionally) supernumerary to the establishment pending absorption*—James Mayo Buchanan and Frederick George Fenton, 25th January, 1927, and 1st February, 1927, respectively; Lieutenant-Colonel E. W. Gutteridge is seconded whilst attending a post-graduate course abroad, 12th January, 1927.

Australian Army Medical Corps Reserve.

Major P. A. Maplestone, D.S.O., and Captain A. W. Le Souef are transferred to the Australian Army Medical Corps Reserve, 6th Military District, 20th December, 1926.

Fourth Military District.

Australian Army Medical Corps.

Captain G. H. B. Black is appointed from the Australian Army Medical Corps Reserve, 10th January, 1927. *To be Captain (provisionally)*—Esmond Frank West, 11th January, 1927.

Australian Army Medical Corps Reserve.

Captain A. R. Fletcher is transferred to the Australian Army Medical Corps Reserve, 2nd Military District, 20th January, 1927.

Sixth Military District.

Australian Army Medical Corps Reserve.

Major P. A. Maplestone, D.S.O., and Captain A. W. Le Souef are transferred from the Australian Army Medical Corps Reserve, 3rd Military District, 20th December, 1926.

NOTICE.

THE hospital policy of the Queensland Branch of the British Medical Association will be discussed at a meeting of the Hospital Subcommittee of the Council and representatives of the various affiliated local Medical Associations to be held at the B.M.A. Building, Adelaide Street, Brisbane, on March 18, 1927, at 8.15 p.m. Individual country members who have any special points which they wish discussed, should communicate with the Honorary Secretary of the local Medical Association of their district.

Books Received.

FOOD AND THE PRINCIPLES OF DIETETICS, by Robert Hutchison, M.D. (Edinburgh), F.R.C.P.; Sixth Edition; 1927. London: Edward Arnold and Company. Royal 8vo., pp. 630, with illustrations. Price: 21s. net.

DENTAL PROSTHETIC MECHANICS, by D. M. Shaw; 1927. London: Edward Arnold and Company. Royal 8vo., pp. 381, with illustrations. Price: 21s. net.

FINLAYSON'S CLINICAL MANUAL FOR THE STUDY OF MEDICAL CASES, Edited by Carl. H. Browning, M.D., E. P. Cathcart, M.D., F.R.S., and Leonard Findlay, M.D., D.Sc.; Fourth Edition; Revised and Augmented throughout by various contributors; 1926. London: G. Bell and Sons, Limited. Post 8vo., pp. 830, with illustrations. Price: 18s. net.

THE NORMAL CHILD AND HOW TO KEEP IT NORMAL IN MIND AND MORALS, by B. Sachs, M.D.; 1926. New York: Paul B. Hoeber Incorporated. Post 8vo., pp. 111. Price: $1.50 net.

DISEASES OF THE INTESTINES, by A. P. Cawadias, O.B.E., M.D. (Paris), M.R.C.P. (London); 1927. London: Baillière, Tindall and Cox. Demy 8vo., pp. 314, with illustrations. Price: 16s. net.

Medical Appointments.

Dr. Samuel James Alexander (B.M.A.) has been appointed Government Medical Officer at Broadwater, New South Wales.

* * * *

Dr. Charles William Sutherland Dun (B.M.A.) has been appointed Government Medical Officer at Warialda, New South Wales.

* * * *

Dr. F. R. D. Glissan has been appointed Quarantine Officer at Port Hedland, Western Australia.

* * * *

Dr. A. B. Lilley, Dr. D. D. Coutts (B.M.A.) and Dr. C. Stanley have been appointed Quarantine Officers under the *Quarantine Act*, 1908-1924.

* * * *

Dr. Charles Duguid (B.M.A.) has been appointed by the Governor's Deputy in Council, South Australia, an Honorary Commissioner to inquire into and report upon maternal morbidity and mortality in child-birth in Great Britain and the Continent of Europe.

* * * *

Dr. Alexander Matheson Morgan (B.M.A.) has been appointed a Member of the Fauna and Flora Board, South Australia.

* * * *

Dr. John Ellison Porter (B.M.A.) has been appointed Acting Medical Officer at the Port Adelaide Casualty Hospital.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xx.

AUSTIN HOSPITAL, HEIDELBERG, VICTORIA: Junior Resident Medical Officer.

BALMAIN AND DISTRICT HOSPITAL, SYDNEY: Junior Resident Medical Officer.

FLINDERS ISLAND MUNICIPALITY, TASMANIA: Health Officer.

HOSPITAL FOR THE INSANE, TOOWOOMBA, QUEENSLAND: Assistant Medical Superintendent.

N.S.W. RUGBY FOOTBALL LEAGUE: Central Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia. Yarloop Hospital Fund.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

MAR. 8.—Tasmanian Branch, B.M.A.: Branch.
MAR. 8.—New South Wales Branch, B.M.A.: Ethics Committee.
MAR. 10.—Victorian Branch, B.M.A.: Council.
MAR. 11.—Queensland Branch, B.M.A.: Council.
MAR. 15.—Tasmanian Branch, B.M.A.: Council.
MAR. 15.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
MAR. 16.—Western Australian Branch, B.M.A.: Branch.
MAR. 21.—New South Wales Branch, B.M.A.: Organization and Science Committee.
MAR. 22.—New South Wales Branch, B.M.A.: Medical Politics Committee.
MAR. 23.—Victorian Branch, B.M.A.: Council.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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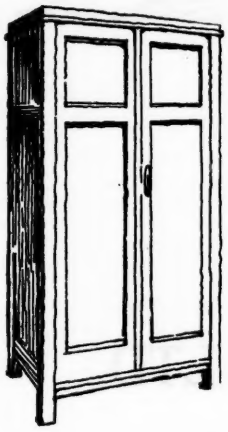

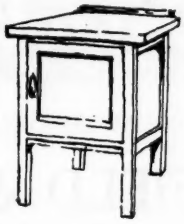

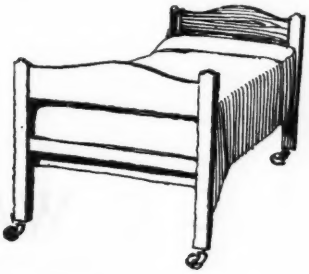

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